

Texas MUTCD

Manual on Uniform Traffic Control Devices

Revision 1, November 2012



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Revision Number 1

To: Users/holders of the 2011 Texas Manual on Uniform
Traffic Control Devices

From: Carol T. Rawson, P.E., Director
Traffic Operations Division

A handwritten signature in black ink that reads "Carol T. Rawson, P.E." in a cursive style.

Effective Date: December 6, 2012

Revision Number 1 of the 2011 Texas Manual on Uniform Traffic Control Devices (Texas MUTCD) is hereby issued. This revision incorporates changes to existing compliance dates as adopted by the FHWA, include language restored to the National MUTCD concerning engineering judgment, make the corrections identified by the FHWA in the National MUTCD, and correct minor, non-substantive typographical errors in the 2011 Texas MUTCD.

This revision applies to the Table of Contents, Introduction, Parts 1, 2, 3, 4, 5, 6, 7, 8, and 9. Revisions are indicated with the text "November 2012" in the footer of each revised page.

Attached is a Change List for Revision 1, which includes the section and page number revised. A complete Revision 1 manual is available on the TxDOT web page at http://www.txdot.gov/txdot_library/publications/tmutcd.htm. Also available on the page is a file with all the revised pages that may be used to replace corresponding pages in previously printed copies of the Texas MUTCD.

CERTIFICATION

Pursuant to the provisions of Transportation Code, § 544.001. I certify that this 2011 Texas Manual on Uniform Traffic Control Devices, which contains standards for a uniform system of traffic control devices, is in accordance with the provisions contained in a Minute Order passed by the Texas Transportation Commission on November 17, 2011.

This Manual, with subsequent revisions, shall apply to all traffic control devices installed on or after adoption of this manual upon the highways, roads, and streets of this State except that traffic control devices conforming to the 2006 Texas Manual on Uniform Traffic Control Devices for Streets and Highways Revision 1 on order or under contract prior to adoption of this manual may be installed. All existing traffic control devices or installations not in conformance with standards in this Manual shall be changed to conform to the new standards herein when replacement becomes necessary. Traffic control devices not previously required but which are required by new standards in this Manual shall be installed by the date indicated on the "Phase in Compliance Dates".

This 2011 Manual cancels and supersedes the 2006 Texas Manual on Uniform Traffic Control Devices Revision 1, as amended, and all previous editions thereof.

Official Ruling on Requests for Interpretation, Changes, and Experimentations to the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition, with which this Manual is correlated, may be used as interim standards in the State of Texas, pending incorporation in this Manual as "Revisions".



Phil Wilson
Executive Director

- A. One compliant device in the midst of a series of adjacent non-compliant devices would be confusing to road users; and/or
- B. The schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the TMUTCD.

Table I-1. Target Compliance Dates Established by the FHWA

2011 TMUTCD Section Number(s)	2011 TMUTCD Section Title	Specific Provision	Compliance Date
2A.08	Maintaining Minimum Retroreflectivity	Implementation and continued use of an assessment or management method that is designed to maintain regulatory and warning sign retroreflectivity at or above the established minimum levels (see Paragraph 2)	June 13, 2014*
2A.19	Lateral Offset	Crashworthiness of sign supports on roads with posted speed limit of 50 mph or higher (see Paragraph 2)	January 17, 2013 (date established in the 2003 TMUTCD)
2B.40	ONE WAY Signs (R6-1, R6-2)	New requirements in the 2011 TMUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10)	December 31, 2019
2C.06 through 2C.14	Horizontal Alignment Warning Signs	Revised requirements in the 2011 TMUTCD regarding the use of various horizontal alignment signs (see Table 2C-5)	December 31, 2019
2E.31, 2E.33, and 2E.36	Plaques for Left-Hand Exits	New requirement in the 2011 TMUTCD to use E1-5aP and E1-5bP plaques for left-hand exits	December 31, 2014
4D.26	Yellow Change and Red Clearance Intervals	New requirement in the 2006 TMUTCD that durations of yellow change and red clearance intervals shall be determined using engineering practices (see Paragraphs 3 and 6)	June 13, 2017, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first
4E.06	Pedestrian Intervals and Signal Phases	New requirement in the 2011 TMUTCD that the pedestrian change interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 3 seconds (see Paragraph 4)	June 13, 2017, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first
6D.03**	Worker Safety Considerations	New requirement in the 2011 TMUTCD that all workers within the right-of-way shall wear high-visibility apparel (see Paragraphs 4, 6, and 7)	December 31, 2011
6E.02**	High-Visibility Safety Apparel	New requirement in the 2011 TMUTCD that all flaggers within the right-of-way shall wear high-visibility apparel	December 31, 2011
7D.04**	Uniform of Adult Crossing Guards	New requirement in the 2011 TMUTCD for high-visibility apparel for adult crossing guards	December 31, 2011
8B.03, 8B.04	Grade Crossing (Crossbuck) Signs and Supports	Retroreflective strip on Crossbuck sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04)	December 31, 2019
8B.04	Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings	New requirement in the 2011 TMUTCD for the use of STOP or YIELD signs with Crossbuck signs at passive grade crossings	December 31, 2019

* Types of signs other than regulatory or warning are to be added to an agency's management or assessment method as resources allow.

** TMUTCD requirement is a result of a federal legislative mandate.

Note: All compliance dates that were previously published in Table I-1 of the 2011 TMUTCD and that do not appear in this revised table have been eliminated.

02 **When the public agency or the official having jurisdiction over a street or highway or, in the case of private roads open to public travel, the private owner or private official having jurisdiction, has granted proper authority, others such as contractors and public utility companies shall be permitted to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall conform with the Standards of this Manual.**

03 **All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.**

Support:

04 Provisions of this Manual are based upon the concept that effective traffic control depends upon both appropriate application of the devices and reasonable enforcement of the regulations.

05 Although some highway design features, such as curbs, median barriers, guardrails, speed humps or tables, and textured pavement, have a significant impact on traffic operations and safety, they are not considered to be traffic control devices and provisions regarding their design and use are generally not included in this Manual.

06 Certain types of signs and other devices that do not have any traffic control purpose are sometimes placed within the highway right-of-way by or with the permission of the public agency or the official having jurisdiction over the street or highway. Most of these signs and other devices are not intended for use by road users in general, and their message is only important to individuals who have been instructed in their meanings. These signs and other devices are not considered to be traffic control devices and provisions regarding their design and use are not included in this Manual. Among these signs and other devices are the following:

- A. Devices whose purpose is to assist highway maintenance personnel. Examples include markers to guide snowplow operators, devices that identify culvert and drop inlet locations, and devices that precisely identify highway locations for maintenance or mowing purposes.
- B. Devices whose purpose is to assist fire or law enforcement personnel. Examples include markers that identify fire hydrant locations, signs that identify fire or water district boundaries, speed measurement pavement markings, small indicator lights to assist in enforcement of red light violations, and photo enforcement systems.
- C. Devices whose purpose is to assist utility company personnel and highway contractors, such as markers that identify underground utility locations.
- D. Signs posting local non-traffic ordinances.
- E. Signs giving civic organization meeting information.

Standard:

07 **Signs and other devices that do not have any traffic control purpose that are placed within the highway right-of-way shall not be located where they will interfere with, or detract from, traffic control devices.**

Guidance:

08 *Any unauthorized traffic control device or other sign or message placed on the highway right-of-way by a private organization or individual constitutes a public nuisance and should be removed. All unofficial or non-essential traffic control devices, signs, or messages should be removed.*

Section 1A.09 Engineering Study and Engineering Judgment

Support:

01 Definitions of an engineering study and engineering judgment are contained in Section 1A.13.

Standard:

02 **This Manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.**

Guidance:

03 *The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment. Thus, while this Manual provides Standards, Guidance, and Options for design and application of traffic control devices, this Manual should not be considered a substitute for engineering judgment. Engineering judgement should be exercised in the selection and application of traffic control devices, as well as in the location and design of roads and streets that devices complement.*

04 *Early in the processes of location and design of roads and streets, engineers should coordinate such location and design with the design and placement of the traffic control devices to be used with such roads and streets.*

05 *Jurisdictions, or owners of private roads open to public travel, with responsibility for traffic control that do not have engineers on their staffs who are trained and/or experienced in traffic control devices should seek engineering assistance from others, such as the Texas Department of Transportation, their county, a nearby large city, or a traffic engineering consultant.*

Support:

- 06 As part of the Federal-aid Program, each State is required to have a Local Technical Assistance Program (LTAP) and to provide technical assistance to local highway agencies. Requisite technical training in the application of the principles of the TMUTCD is available from the State's Local Technical Assistance Program for needed engineering guidance and assistance.

Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals**Standard:**

- 01 **Design, application, and placement of traffic control devices other than those adopted in this Manual shall be prohibited unless the provisions of this Section are followed.**

Support:

- 02 Continuing advances in technology will produce changes in the highway, vehicle, and road user proficiency; therefore, portions of the system of traffic control devices in this Manual will require updating. In addition, unique situations often arise for device applications that might require interpretation or clarification of this Manual. It is important to have a procedure for recognizing these developments and for introducing new ideas and modifications into the system.

Standard:

- 03 **Requests for any interpretation, permission to experiment, interim approval, or change shall be sent to the Texas Department of Transportation, Traffic Operations Division, 125 E. 11th Street, Austin, Texas 78701. If the request is an issue TxDOT can and has the authority to address, TxDOT will reply with an official response. If the request requires FHWA input, it will be forwarded to FHWA's MUTCD team in the Office of Transportation Operations for an official response.**

- 04 An interpretation includes a consideration of the application and operation of standard traffic control devices, official meanings of standard traffic control devices, or the variations from standard device designs.

Guidance:

- 05 *Requests for an interpretation of this Manual should contain the following information:*

- A. *A concise statement of the interpretation being sought;*
- B. *A description of the condition that provoked the need for an interpretation;*
- C. *Any illustration that would be helpful to understand the request; and*
- D. *Any supporting research data that is pertinent to the item to be interpreted.*

Support:

- 06 Requests to experiment include consideration of field deployment for the purpose of testing or evaluating a new traffic control device, its application or manner of use, or a provision not specifically described in this Manual.

- 07 A request for permission to experiment will be considered only when submitted by the public agency or toll facility operator responsible for the operation of the road or street on which the experiment is to take place. For a private road open to public travel, the request will be considered only if it is submitted by the private owner or private official having jurisdiction.

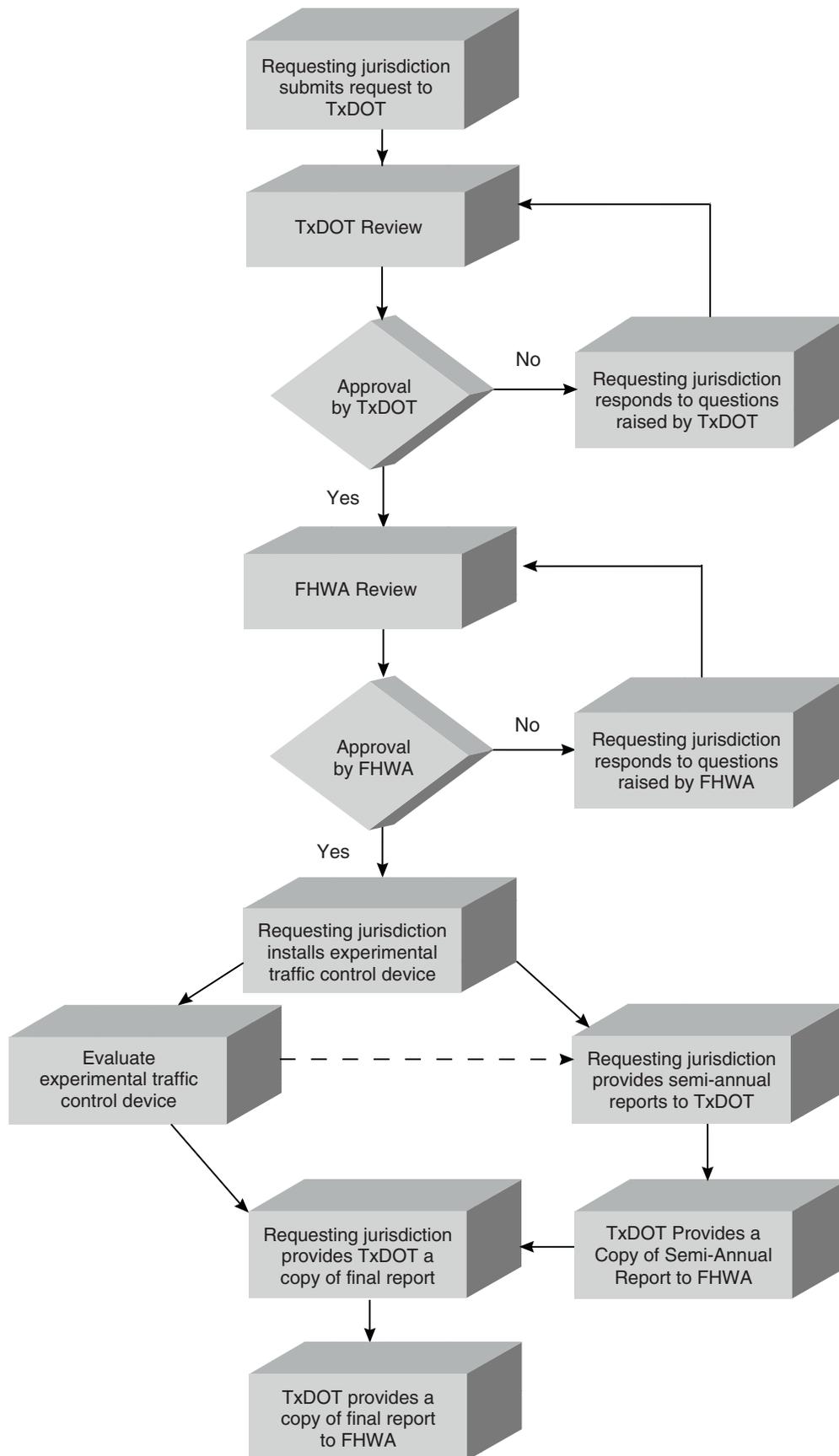
- 08 A diagram indicating the process for experimenting with traffic control devices is shown in Figure 1A-1.

Guidance:

- 09 *The request for permission to experiment should contain the following:*

- A. *A statement indicating the nature of the problem.*
- B. *A description of the proposed change to the traffic control device or application of the traffic control device, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.*
- C. *Any illustration that would be helpful to understand the traffic control device or use of the traffic control device.*
- D. *Any supporting data explaining how the traffic control device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how this choice of device or application was derived.*
- E. *A legally binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for experimentation unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its*

Figure 1A-1. Process for Requesting and Conducting Experimentations for New Traffic Control Devices



specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. As long as the general concept is not patented or copyrighted, it is acceptable for experimentation to incorporate the use of one or more patented devices of one or several manufacturers.)

- F. *The time period and location(s) of the experiment.*
- G. *A detailed research or evaluation plan that must provide for close monitoring of the experimentation, especially in the early stages of its field implementation. The evaluation plan should include before and after studies as well as quantitative data describing the performance of the experimental device.*
- H. *An agreement to restore the site of the experiment to a condition that complies with the provisions of this Manual within 3 months following the end of the time period of the experiment. This agreement must also provide that the agency sponsoring the experimentation will terminate the experimentation at any time that it determines significant safety concerns are directly or indirectly attributable to the experimentation. The FHWA's Office of Transportation Operations or the Texas Department of Transportation has the right to terminate approval of the experimentation at any time if there is an indication of safety concerns. If, as a result of the experimentation, a request is made that this Manual be changed to include the device or application being experimented with, the device or application will be permitted to remain in place until an official rulemaking action has occurred.*
- I. *An agreement to provide semi-annual progress reports for the duration of the experimentation, and an agreement to provide a copy of the final results of the experimentation to the FHWA's Office of Transportation Operations and the Texas Department of Transportation within 3 months following completion of the experimentation. The FHWA's Office of Transportation Operations or the Texas Department of Transportation has the right to terminate approval of the experimentation if reports are not provided in accordance with this schedule.*

Support:

- 10 A change includes consideration of a new device to replace a present standard device, an additional device to be added to the list of standard devices, or a revision to a traffic control device application or placement criteria.

Guidance:

- 11 *Requests for a change to this Manual should contain the following information:*
- A. *A statement indicating what change is proposed;*
 - B. *Any illustration that would be helpful to understand the request; and*
 - C. *Any supporting research data that is pertinent to the item to be reviewed.*

Support:

- 12 Interim approval allows interim use, pending official rulemaking, of a new traffic control device, a revision to the application or manner of use of an existing traffic control device, or a provision not specifically described in this Manual. The FHWA issues an Interim Approval by official memorandum signed by the Associate Administrator for Operations and posts this memorandum on the MUTCD website. The issuance by FHWA of an interim approval will typically result in the traffic control device or application being placed into the next scheduled rulemaking process for revisions to this Manual.

- 13 Interim approval is considered based on the results of successful experimentation, results of analytical or laboratory studies, and/or review of non-U.S. experience with a traffic control device or application. Interim approval considerations include an assessment of relative risks, benefits, costs, impacts, and other factors.

- 14 Interim approval allows for optional use of a traffic control device or application and does not create a new mandate or recommendation for use. Interim approval includes conditions that jurisdictions agree to comply with in order to use the traffic control device or application until an official rulemaking action has occurred.

Standard:

- 15 **A jurisdiction, toll facility operator, or owner of a private road open to public travel that desires to use a traffic control device for which FHWA has issued an interim approval shall request permission from TxDOT. TxDOT will then forward the request to FHWA.**

Guidance:

- 16 *The request for permission to place a traffic control device under an interim approval should contain the following:*
- A. *A description of where the device will be used, such as a list of specific locations or highway segments or types of situations, or a statement of the intent to use the device jurisdiction-wide;*
 - B. *An agreement to abide by the specific conditions for use of the device as contained in the FHWA's interim approval document;*

- 257. **Wrong-Way Arrow**—a slender, elongated, white pavement marking arrow placed upstream from the ramp terminus to indicate the correct direction of traffic flow. Wrong-way arrows are intended primarily to warn wrong-way road users that they are going in the wrong direction.
- 258. **Yellow Change Interval**—the first interval following the green or flashing arrow interval during which the steady yellow signal indication is displayed.
- 259. **Yield Line**—a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made.

Section 1A.14 Meanings of Acronyms and Abbreviations in this Manual

Standard:

01 The following acronyms and abbreviations, when used in this Manual, shall have the following meanings:

- 1. **AADT**—annual average daily traffic
- 2. **AASHTO**—American Association of State Highway and Transportation Officials
- 3. **ADA**—Americans with Disabilities Act
- 4. **ADAAG**—Americans with Disabilities Accessibility Guidelines
- 5. **ADT**—average daily traffic
- 6. **AFAD**—Automated Flagger Assistance Device
- 7. **ANSI**—American National Standards Institute
- 8. **CFR**—Code of Federal Regulations
- 9. **CMS**—changeable message sign
- 10. **dba**—A-weighted decibels
- 11. **EPA**—Environmental Protection Agency
- 12. **ETC**—electronic toll collection
- 13. **EV**—electric vehicle
- 14. **FHWA**—Federal Highway Administration
- 15. **FRA**—Federal Railroad Administration
- 16. **FTA**—Federal Transit Administration
- 17. **HOT**—high occupancy tolls
- 18. **HOTM**—FHWA’s Office of Transportation Management
- 19. **HOTO**—FHWA’s Office of Transportation Operations
- 20. **HOV**—high-occupancy vehicle
- 21. **ILEV**—inherently low emission vehicle
- 22. **ISEA**—International Safety Equipment Association
- 23. **ITE**—Institute of Transportation Engineers
- 24. **ITS**—intelligent transportation systems
- 25. **LED**—light emitting diode
- 26. **LP**—liquid petroleum
- 26A. **LRT - light rail transit**
- 27. **MPH or mph**—miles per hour
- 28. **MUTCD**—Manual on Uniform Traffic Control Devices
- 29. **NCHRP**—National Cooperative Highway Research Program
- 30. **ORT**—open-road tolling
- 31. **PCMS**—portable changeable message sign
- 32. **PRT**—perception-response time
- 33. **RPM**—raised pavement marker
- 34. **RRPM**—raised retroreflective pavement marker
- 35. **RV**—recreational vehicle
- 36. **TDD**—telecommunication devices for the deaf
- 36A. **TMUTCD**— Texas Manual on Uniform Traffic Control Devices
- 37. **TRB**—Transportation Research Board
- 37A. **TRF - Traffic Operations Division (part of TxDOT)**
- 38. **TTC**—temporary traffic control
- 38A. **TxDOT - Texas Department of Transportation**
- 39. **U.S.**—United States
- 40. **U.S.C.**—United States Code
- 41. **USDOT**—United States Department of Transportation
- 42. **UVC**—Uniform Vehicle Code
- 43. **VPH or vph**—vehicles per hour

Section 1A.15 Abbreviations Used on Traffic Control Devices**Standard:**

01 When the word messages shown in Table 1A-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1A-1 shall be used.

02 When the word messages shown in Table 1A-2 need to be abbreviated on a portable changeable message sign, the abbreviations shown in Table 1A-2 shall be used. Unless indicated by an asterisk, these abbreviations shall only be used on portable changeable message signs.

Guidance:

03 The abbreviations for the words listed in Table 1A-2 that also show a prompt word should not be used on a portable changeable message sign unless the prompt word shown in Table 1A-2 either precedes or follows the abbreviation, as applicable.

Standard:

04 The abbreviations shown in Table 1A-3 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.

Guidance:

05 If multiple abbreviations are permitted in Table 1A-1 or 1A-2, the same abbreviation should be used throughout a single jurisdiction.

06 Except as otherwise provided in Table 1A-1 or 1A-2 or unless necessary to avoid confusion, periods, commas, apostrophes, question marks, ampersands, and other punctuation marks or characters that are not letters or numerals should not be used in any abbreviation.

Table 1A-1. Acceptable Abbreviations

Word Message	Standard Abbreviation
Afternoon / Evening	PM
Alternate	ALT
AM Radio	AM
Avenue	AVE, AV
Bicycle	BIKE
Boulevard	BLVD*
Bridge	(See Table 1A-2)
CB Radio	CB
Center (as part of a place name)	CTR
Circle	CIR*
Civil Defense	CD
Compressed Natural Gas	CNG
Court	CT*
Crossing (other than highway-rail)	X-ING
Drive	DR*
East	E
Electric Vehicle	EV
Expressway	EXPWY*
Feet	FT
FM Radio	FM
Freeway	FRWY, FWY*
Friday	FRI
Hazardous Material	HAZMAT
High Occupancy Vehicle	HOV

Word Message	Standard Abbreviation
Highway	HWY*
Hospital	HOSP
Hour(s)	HR, HRS
Information	INFO
Inherently Low Emission Vehicle	ILEV
International	INTL
Interstate	(See Table 1A-2)
Junction / Intersection	JCT
Lane	(See Table 1A-2)
Liquid Propane Gas	LP-GAS
Maximum	MAX
Mile(s)	MI
Miles Per Hour	MPH
Minimum	MIN
Minute(s)	MIN
Monday	MON
Morning / Late Night	AM
Mount	MT
Mountain	MTN
National	NATL
North	N
Parkway	PKWY*
Pedestrian	PED
Place	PL*

Word Message	Standard Abbreviation
Pounds	LBS
Road	RD*
Saint	ST
Saturday	SAT
South	S
State, county, or other non-US or non-Interstate numbered route	(See Table 1A-2)
Street	ST*
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Terrace	TER*
Thursday	THURS
Thruway	THWY*
Tons of Weight	T
Trail	TR*
Tuesday	TUES
Turnpike	TPK*
Two-Way Intersection	2-WAY
US Numbered Route	(See Table 1A-2)
Wednesday	WED
West	W

*This abbreviation shall not be used for any application other than the name of a roadway.

**Table 1A-2. Abbreviations That Shall be Used Only
on Portable Changeable Message Signs**

Word Message	Standard Abbreviation	Prompt Word That Should Precede the Abbreviation	Prompt Word That Should Follow the Abbreviation
Access	ACCS	—	Road
Ahead	AHD	Fog	—
Blocked	BLKD	Lane	—
Bridge	BR*	[Name]	—
Cannot	CANT	—	—
Center	CNTR	—	Lane
Chemical	CHEM	—	Spill
Condition	COND	Traffic	—
Congested	CONG	Traffic	—
Construction	CONST	—	Ahead
Crossing	XING	—	—
Do Not	DONT	—	—
Downtown	DWNTN	—	Traffic
Eastbound	E-BND	—	—
Emergency	EMER	—	—
Entrance, Enter	ENT	—	—
Exit	EX	Next	—
Express	EXP	—	Lane
Frontage	FRNTG	—	Road
Hazardous	HAZ	—	Driving
Highway-Rail Grade Crossing	RR XING	—	—
Interstate	I-*	—	[Number]
It Is	ITS	—	—
Lane	LN	[Roadway Name]*, Right, Left, Center	—
Left	LFT	—	—
Local	LOC	—	Traffic
Lower	LWR	—	Level
Maintenance	MAINT	—	—
Major	MAJ	—	Accident
Minor	MNR	—	Accident
Normal	NORM	—	—
Northbound	N-BND	—	—
Oversized	OVRSZ	—	Load
Parking	PKING	—	—
Pavement	PVMT	Wet	—
Prepare	PREP	—	To Stop
Quality	QLTY	Air	—
Right	RT	Keep, Next	—
Right	RT	—	Lane
Roadwork	RDWK	—	Ahead, [Distance]
Route	RT, RTE	Best	—
Service	SERV	—	—
Shoulder	SHLDR	—	—
Slippery	SLIP	—	—
Southbound	S-BND	—	—
Speed	SPD	—	—
State, county, or other non-US or non-Interstate numbered route	[Route Abbreviation determined by highway agency]*	—	[Number]**
Tires With Lugs	LUGS	—	—
Traffic	TRAF	—	—
Travelers	TRVLR	—	—
Two-Wheeled Vehicles	CYCLES	—	—
Upper	UPR	—	Level
US Numbered Route	US*	—	[Number]**
Vehicle(s)	VEH, VEHS	—	—
Warning	WARN	—	—
Westbound	W-BND	—	—
Will Not	WONT	—	—

* This abbreviation, when accompanied by the prompt word, may be used on traffic control devices other than portable changeable message signs.

** A space and no dash shall be placed between the abbreviation and the number of the route.

Table 1A-3. Unacceptable Abbreviations

Abbreviation	Intended Word	Common Misinterpretation
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

Support:

- 07 The clear zone is the total roadside border area, starting at the edge of the traveled way, available for use by errant vehicles. The width of the clear zone is dependent upon traffic volumes, speeds, and roadside geometry. Additional information can be found in AASHTO's "Roadside Design Guide" (see Section 1A.11).

Guidance:

- 08 *With the increase in traffic volumes and the desire to provide road users regulatory, warning, and guidance information, an order of priority for sign installation should be established.*

Support:

- 09 An order of priority is especially critical where space is limited for sign installation and there is a demand for several different types of signs. Overloading road users with too much information is not desirable.

Guidance:

- 10 *Because regulatory and warning information is more critical to the road user than guidance information, regulatory and warning signing whose location is critical should be displayed rather than guide signing in cases where conflicts occur. Community wayfinding and acknowledgment guide signs should have a lower priority as to placement than other guide signs. Information of a less critical nature should be moved to less critical locations or omitted.*

Option:

- 11 Under some circumstances, such as on curves to the right, signs may be placed on median islands or on the left-hand side of the road. A supplementary sign located on the left-hand side of the roadway may be used on a multi-lane road where traffic in a lane to the right might obstruct the view to the right.

Guidance:

- 12 *In urban areas where crosswalks exist, signs should not be placed within 4 feet in advance of the crosswalk (see Drawing D in Figure 2A-3).*

Section 2A.17 Overhead Sign Installations

Guidance:

- 01 *Overhead signs should be used on freeways and expressways, at locations where some degree of lane-use control is desirable, and at locations where space is not available at the roadside.*

Support:

- 02 The operational requirements of the present highway system are such that overhead signs have value at many locations. The factors to be considered for the installation of overhead sign displays are not definable in specific numerical terms.

Option:

- 03 The following conditions (not in priority order) may be considered in an engineering study to determine if overhead signs would be beneficial:

- A. Traffic volume at or near capacity,
- B. Complex interchange design,
- C. Three or more lanes in each direction,
- D. Restricted sight distance,
- E. Closely-spaced interchanges,
- F. Multi-lane exits,
- G. Large percentage of trucks,
- H. Street lighting background,
- I. High-speed traffic,
- J. Consistency of sign message location through a series of interchanges,
- K. Insufficient space for post-mounted signs,
- L. Junction of two freeways, and
- M. Left exit ramps.

- 04 Over-crossing structures may be used to support overhead signs.

Support:

- 05 Under some circumstances, the use of over-crossing structures as sign supports might be the only practical solution that will provide adequate viewing distance. The use of such structures as sign supports might eliminate the need for the foundations and sign supports along the roadside.

Section 2A.18 Mounting Height

Standard:

01 **The provisions of this Section shall apply unless specifically stated otherwise for a particular sign or object marker elsewhere in this Manual.**

Support:

02 The mounting height requirements for object markers are provided in Chapter 2C.

03 In addition to the provisions of this Section, information affecting the minimum mounting height of signs as a function of crash performance can be found in AASHTO's "Roadside Design Guide" (see Section 1A.11).

Standard:

04 **The minimum height, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement, of signs installed at the side of the road in rural areas shall be 7 feet (see Figure 2A-2).**

05 **The minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of signs installed at the side of the road in business, commercial, or residential areas where parking or pedestrian movements are likely to occur, or where the view of the sign might be obstructed, shall be 7 feet (see Figure 2A-2).**

Option:

06 The height to the bottom of a supplemental plaque mounted below another sign may be 1 foot less than the height specified in Paragraphs 4 and 5.

Standard:

07 **The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet.**

08 **If the bottom of a supplemental plaque that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway (see Section 6D.02), the supplemental plaque shall not project more than 4 inches into the pedestrian facility.**

Option:

09 Signs that are placed 30 feet or more from the edge of the traveled way may be installed with a minimum height of 5 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement.

Standard:

10 **Directional signs on freeways and expressways shall be installed with a minimum height of 7 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement. All route signs, warning signs, and regulatory signs on freeways and expressways shall be installed with a minimum height of 7 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement.**

11 **Where large signs having an area exceeding 50 square feet are installed on multiple breakaway posts, the clearance from the ground to the bottom of the sign shall be at least 7 feet.**

Option:

12 A route sign assembly consisting of a route sign and auxiliary signs (see Section 2D.12) may be treated as a single sign for the purposes of this Section.

13 The mounting height may be adjusted when supports are located near the edge of the right-of-way on a steep backslope in order to avoid the sometimes less desirable alternative of placing the sign closer to the roadway.

Standard:

14 **Overhead signs shall provide a vertical clearance of not less than 17 feet 6 inches to the sign, light fixture, or sign bridge over the entire width of the pavement and shoulders except where the structure on which the overhead signs are to be mounted or other structures along the roadway near the sign structure have a lesser vertical clearance.**

Option:

15 If the vertical clearance of other structures along the roadway near the sign structure is less than 16 feet, the vertical clearance to an overhead sign structure or support may be as low as 1 foot higher than the vertical clearance of the other structures in order to improve the visibility of the overhead signs.

16 In special cases it may be necessary to reduce the clearance to overhead signs because of substandard dimensions in tunnels and other major structures such as double-deck bridges.

Support:

17 Figure 2A-2 illustrates some examples of the mounting height requirements contained in this Section.

CHAPTER 2B. REGULATORY SIGNS, BARRICADES, AND GATES

Section 2B.01 Application of Regulatory Signs

Standard:

- 01 Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements.
- 02 Regulatory signs shall be installed at or near where the regulations apply. The signs shall clearly indicate the requirements imposed by the regulations and shall be designed and installed to provide adequate visibility and legibility in order to obtain compliance.
- 03 Regulatory signs shall be retroreflective or illuminated (see Section 2A.07) to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion in this Manual for a particular sign or group of signs.
- 04 The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting.

Support:

- 05 Section 1A.09 contains information regarding the assistance that is available to jurisdictions that do not have engineers on their staffs who are trained and/or experienced in traffic control devices.

Section 2B.02 Design of Regulatory Signs

Standard:

- 01 Regulatory signs shall be rectangular unless specifically designated otherwise. Regulatory signs shall be designed in accordance with the sizes, shapes, colors, and legends contained in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).

Option:

- 02 Regulatory word message signs other than those classified and specified in this Manual and the “Standard Highways Sign Designs for Texas” book (see Section 1A.11) may be developed to aid the enforcement of other laws or regulations.
- 03 Except for symbols on regulatory signs, minor modifications may be made to the design provided that the essential appearance characteristics are met.

Support:

- 04 The use of educational plaques to supplement symbol signs is described in Section 2A.12.

Guidance:

- 05 *Changeable message signs displaying a regulatory message incorporating a prohibitory message that includes a red circle and slash on a static sign should display a red symbol that approximates the same red circle and slash as closely as possible.*

Section 2B.03 Size of Regulatory Signs

Standard:

- 01 Except as provided in Section 2A.11, the sizes for regulatory signs shall be as shown in Table 2B-1.

Support:

- 02 Section 2A.11 contains information regarding the applicability of the various columns in Table 2B-1.

Standard:

- 03 Except as provided in Paragraphs 4 and 5, the minimum sizes for regulatory signs facing traffic on multi-lane conventional roads shall be as shown in the Multi-lane column of Table 2B-1.

Option:

- 04 Where the posted speed limit is 35 mph or less on a multi-lane highway or street, other than for a STOP sign, the minimum size shown in the Single Lane column in Table 2B-1 may be used.
- 05 Where a regulatory sign, other than a STOP sign, is placed on the left-hand side of a multi-lane roadway in addition to the installation of the same regulatory sign on the right-hand side or the roadway, the size shown in the Single Lane column in Table 2B-1 may be used for both the sign on the right-hand side and the sign on the left-hand side of the roadway.

Standard:

- 06 A minimum size of 36 x 36 inches shall be used for STOP signs that face multi-lane approaches.

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 1 of 5)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Stop	R1-1	2B.05	30 x 30	36 x 36	36 x 36	—	30 x 30*	48 x 48
Yield	R1-2	2B.08	36x36x36	48x48x48	48x48x48	60x60x60	30x30x30*	—
To Oncoming Traffic (plaque)	R1-2aP	2B.10	24 x 18	24 x 18	36 x 30	48 x 36	24 x 18	—
To Ramp (plaque)	R1-2bTP	2B.10	21 x 15	21 x 15	—	—	—	30 x 24
To Train	R1-2cTP	2B.10	21 x 15	21 x 15	—	—	—	30 x 24
All Way (plaque)	R1-3P	2B.05	18 x 6	18 x 6	—	—	—	30 x 12
Yield Here to Peds	R1-5	2B.11	—	36 x 36	—	—	—	36 x 36
Yield Here to Pedestrians	R1-5a	2B.11	—	36 x 48	—	—	—	36 x 48
In-Street Ped Crossing	R1-6	2B.12	12 x 36	12 x 36	—	—	—	—
Overhead Ped Crossing	R1-9	2B.12	90 x 24	90 x 24	—	—	—	—
Except Right Turn (plaque)	R1-10P	2B.05	24 x 18	24 x 18	—	—	—	—
Speed Limit	R2-1	2B.13	24 x 30	30 x 36	36 x 48	48 x 60	18 x 24	30 x 36
Minimum Speed Limit (plaque)	R2-4P	2B.16	24 x 30	24 x 30	36 x 48	48 x 60	—	36 x 48
Combined Speed Limit	R2-4a	2B.16	24 x 48	24 x 48	36 x 72	48 x 96	—	36 x 72
Maximum Legal Speeds	R2-4cT	2B.13	—	180 x 84	—	180 x 84	—	—
Unless Otherwise Posted (plaque)	R2-5P	2B.13	24 x 18	24 x 18	—	—	—	—
Citywide (plaque)	R2-5aP	2B.13	24 x 6	24 x 6	—	—	—	—
Neighborhood (plaque)	R2-5bP	2B.13	24 x 6	24 x 6	—	—	—	—
Residential (plaque)	R2-5cP	2B.13	24 x 6	24 x 6	—	—	—	—
Movement Prohibition	R3-1,2,3,4,18,27	2B.18	24 x 24	36 x 36	36 x 36	—	—	48 x 48
Mandatory Movement Lane Control	R3-5,5a	2B.20	30 x 36	30 x 36	—	—	—	—
Left Lane (plaque)	R3-5bP	2B.20	30 x 12	30 x 12	—	—	—	—
HOV 2+ (plaque)	R3-5cP	2B.20	24 x 12	24 x 12	—	—	—	—
Taxi Lane (plaque)	R3-5dP	2B.20	30 x 12	30 x 12	—	—	—	—
Center Lane (plaque)	R3-5eP	2B.20	30 x 12	30 x 12	—	—	—	—
Right Lane (plaque)	R3-5fP	2B.20	30 x 12	30 x 12	—	—	—	—
Bus Lane (plaque)	R3-5gP	2B.20	30 x 12	30 x 12	—	—	—	—
Optional Movement Lane Control	R3-6	2B.21	30 x 36	30 x 36	—	—	—	—
Right (Left) Lane Must Turn Right (Left)	R3-7	2B.20	30 x 30	36 x 36	—	—	—	—
Advance Intersection Lane Control	R3-8,8a,8b	2B.22	Varies x 30	Varies x 30	—	—	—	Varies x 36
Turnaround Only	R3-8uT	2B.22A	24 x 30	30 x 36	—	—	—	—
Two-Way Left Turn Only (overhead)	R3-9a	2B.24	30 x 36	30 x 36	—	—	—	—
Two-Way Left Turn Only (post-mounted)	R3-9b	2B.24	24 x 36	24 x 36	—	—	—	36 x 48
BEGIN	R3-9cP	2B.25	30 x 12	30 x 12	—	—	—	—
END	R3-9dP	2B.25	30 x 12	30 x 12	—	—	—	—
Reversible Lane Control (symbol)	R3-9e	2B.26	108 x 48	108 x 48	—	—	—	—
Reversible Lane Control (post-mounted)	R3-9f	2B.26	30 x 42	36 x 54	—	—	—	—
Advance Reversible Lane Control Transition Signing	R3-9g,9h	2B.26	108 x 36	108 x 36	—	—	—	—
End Reverse Lane	R3-9i	2B.26	108 x 48	108 x 48	—	—	—	—
Begin Right (Left) Turn Lane	R3-20	2B.20	24 x 36	24 x 36	—	—	—	—
All Turns (U Turn) from Right Lane	R3-23,23a	2B.27	60 x 36	60 x 36	—	—	—	—
All Turns (U Turn) with arrow	R3-24,24b,25,25b,26a	2B.27	72 x 18	72 x 18	—	—	—	—
U and Left Turns with arrow	R3-24a,25a,26	2B.27	60 x 24	60 x 24	—	—	—	—
Right Lane Must Exit	R3-33	2B.23	—	—	78 x 36	78 x 36	—	—
Right Lane Must Exit	R3-33T	2B.23T	—	—	48 x 48	—	—	—
Left Lane Must Enter Ramp	R3-33aT	2B.23A	—	48 x 48	—	—	—	—
Left Lane Must Enter FRWY	R3-33bT	2B.23A	—	48 x 48	—	—	—	—
All Traffic Must Exit	R3-33cT	2B.23B	—	—	48x 60	—	—	—
Do Not Pass	R4-1	2B.28	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24*	36 x 48
Pass With Care	R4-2	2B.29	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24*	36 x 48

* See Table 9B-1 for minimum size required for signs on bicycle facilities.

** State Maintained conventional roadways should use Multi-Lane as standard.

Notes: 1. Larger signs may be used when appropriate.
2. Dimensions in inches are shown as width x height.

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 2 of 5)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Left Lane For Passing Only	R4-2aT	2B-29A	—	24 x 36	36 x 54	36 x 54	—	48 x 72
Slower Traffic Keep Right	R4-3	2B.30	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24*	36 x 48
Do Not Cross Double White Line	R4-3bT	2B-36A	—	36 x 36	36 x 36	48 x 48	—	—
No Trucks Left Lane	R4-5aT	2B-31A	—	—	—	48 x 60	—	—
Begin No Trucks Left Lane	R4-5bT	2B-31A	—	—	—	48 x 72	—	—
End No trucks Left Lane	R4-5cT	2B-31A	—	—	—	48 x 72	—	—
Keep Right	R4-7,7a,7b	2B.32	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24*	36 x 48
Narrow Keep Right	R4-7c	2B.32	18 x 30	18 x 30	—	—	—	—
Keep Left	R4-8,8a,8b	2B.32	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24	36 x 48
Narrow Keep Left	R4-8c	2B.32	18 x 30	18 x 30	—	—	—	—
Stay in Lane	R4-9	2B.33	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24	36 x 48
Runaway Vehicles Only	R4-10	2B.34	48 x 48	48 x 48	—	—	—	—
Slow Vehicles with XX or More Following Vehicles Must Use Turn-Out	R4-12	2B.35	42 x 24	42 x 24	—	—	—	—
Slow Vehicles Must Use Turn-Out Ahead	R4-13	2B.35	42 x 24	42 x 24	—	—	—	—
Slow Vehicles Must Turn Out	R4-14	2B.35	30 x 42	30 x 42	—	—	—	—
Do Not Drive on Shoulder	R4-17	2B.36	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24	36 x 48
Do Not Pass on Shoulder	R4-18	2B.36	24 x 30	24 x 30	36 x 48	48 x 60	18 x 24	36 x 48
Do Not Enter	R5-1	2B.37	30 x 30	36 x 36	36 x 36	48 x 48	—	36 x 36
Ramp	R5-1TP	2B.37A	—	48 x 18	48 x 18	48 x 18	—	—
Wrong Way	R5-1a	2B.38	36 x 24	42 x 30	36 x 24*	42 x 30	30 x 18	42 x 30
No Trucks	R5-2,2a	2B.39	24 x 24	24 x 24	30 x 30	36 x 36	—	36 x 36
No Motor Vehicles	R5-3	2B.39	24 x 24	24 x 24	—	—	24 x 24	—
No Commercial Vehicles	R5-4	2B.39	24 x 30	24 x 30	36 x 48	36 x 48	—	—
No Vehicles with Lugs	R5-5	2B.39	24 x 30	24 x 30	36 x 48	48 x 60	—	—
No Bicycles	R5-6	2B.39	24 x 24	24 x 24	30 x 30	36 x 36	24 x 24*	48 x 48
No Non-Motorized Traffic	R5-7	2B.39	30 x 24	30 x 24	42 x 24	48 x 30	—	42 x 24
No Motor-Driven Cycles	R5-8	2B.39	30 x 24	30 x 24	42 x 24	48 x 30	—	42 x 24
No Pedestrians, Bicycles, Motor-Driven Cycles	R5-10a	2B.39	30 x 36	30 x 36	—	—	—	—
No Pedestrians or Bicycles	R5-10b	2B.39	30 x 18	30 x 18	—	—	—	—
No Pedestrians	R5-10c	2B.39	24 x 12	24 x 12	—	—	—	—
For Official or Emergency Vehicle Use Only	R5-11T	2B.39	30x30	30x30	48x48	48x48	—	—
One Way	R6-1	2B.40	36 x 12	54 x 18	54 x 18	54 x 18	—	54 x 18
One Way	R6-2	2B.40	24 x 30	30 x 36	36 x 48	48 x 60	18 x 24	36 x 48
Divided Highway Crossing	R6-3,3a	2B.42	30 x 24	30 x 24	36 x 30	—	—	36 x 30
Roundabout Directional (2 chevrons)	R6-4	2B.43	30 x 24	30 x 24	—	—	—	—
Roundabout Directional (3 chevrons)	R6-4a	2B.43	48 x 24	48 x 24	—	—	—	—
Roundabout Directional (4 chevrons)	R6-4b	2B.43	60 x 24	60 x 24	—	—	—	—
Roundabout Circulation (plaque)	R6-5P	2B.44	30 x 30	30 x 30	—	—	—	—
BEGIN ONE WAY	R6-6	2B.40	24 x 30	30 x 36	—	—	—	—
END ONE WAY	R6-7	2B.40	24 x 30	30 x 36	—	—	—	—
Parking Restrictions	R7-1, 2,2a,3,4,5,6,7, 8T, 11,21,21a,22, 23,23a,107,108	2B.46	12 x 18	12 x 18	—	—	—	—
Van Accessible (plaque)	R7-8P	2B.46	12 x 6	12 x 6	—	—	—	—
Fee Station	R7-20	2B.46	24 x 18	24 x 18	—	—	—	—
No Parking (with transit logo)	R7-107a	2B.46	12 x 30	12 x 30	—	—	—	—
No Parking/Restricted Parking (combined sign)	R7-200	2B.46	24 x 18	24 x 18	—	—	—	—

* See Table 9B-1 for minimum size required for signs on bicycle facilities.

** State Maintained conventional roadways should use Multi-Lane as standard.

Notes: 1. Larger signs may be used when appropriate.

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

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 3 of 5)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
No Parking/Restricted Parking (combined sign)	R7-200a	2B.46	12 x 30	12 x 30	—	—	—	—
Tow Away Zone (plaque)	R7-201P,201aP	2B.46	12 x 6	12 x 6	—	—	—	—
This Side of Sign (plaque)	R7-202P	2B.46	12 x 6	12 x 6	—	—	—	—
Emergency Snow Route	R7-203	2B.46	18 x 24	18 x 24	—	—	—	24 x 30
No Parking on Pavement	R8-1	2B.46	24 x 30	24 x 30	36 x 48	48 x 60	—	36 x 48
No Parking Except on Shoulder	R8-2	2B.46	24 x 30	24 x 30	36 x 48	48 x 60	—	36 x 48
No Parking (symbol)	R8-3	2B.46	24 x 24	30 x 30	36 x 36	48 x 48	12 x 12	36 x 36
No Parking	R8-3a	2B.46	24 x 30	24 x 30	36 x 36	48 x 48	18 x 24	36 x 36
No Parking (arrow)	R8-3aT	2B.46	24 x 30	24 x 30	—	—	—	—
Except Sundays and Holidays (plaque)	R8-3bP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
No Truck Parking	R8-3kT	2B.46	24 x 30	24 x 30	36 x 48	48 x 60	—	—
On Pavement (plaque)	R8-3cP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
On Bridge (plaque)	R8-3dP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
On Tracks (plaque)	R8-3eP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
Except on Shoulder (plaque)	R8-3fP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
Loading Zone (plaque)	R8-3gP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
Times of Day (plaque)	R8-3hP	2B.46	24 x 18	24 x 18	—	—	12 x 9	30 x 24
Emergency Parking Only	R8-4	2B.49	30 x 24	30 x 24	30 x 24	48 x 36	—	48 x 36
No Stopping on Pavement	R8-5	2B.46	24 x 30	24 x 30	36 x 48	48 x 60	—	36 x 48
No Stopping Except on Shoulder	R8-6	2B.46	24 x 30	24 x 30	36 x 48	48 x 60	—	36 x 48
Emergency Stopping Only	R8-7	2B.49	30 x 24	30 x 24	48 x 36	48 x 36	—	48 x 36
Walk on Left Facing Traffic	R9-1	2B.50	18 x 24	18 x 24	—	—	—	—
Cross Only at Crosswalks	R9-2	2B.51	12 x 18	12 x 18	—	—	—	—
No Pedestrians	R9-3	2B.51	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
No Pedestrian Crossing	R9-3a	2B.51	12 x 18	12 x 18	—	—	—	—
Use Crosswalk (plaque)	R9-3bP	2B.51	18 x 12	18 x 12	—	—	—	—
No Hitchhiking (symbol)	R9-4	2B.50	18 x 18	18 x 18	—	—	—	24 x 24
No Hitchhiking	R9-4a	2B.50	18 x 24	18 x 24	—	—	12 x 18	—
No Skaters	R9-13	2B.39	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
No Equestrians	R9-14	2B.39	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
Cross Only On Green	R10-1	2B.52	12 x 18	12 x 18	—	—	—	—
Pedestrian Signs and Plaques	R10-2, 3,3b,3c,3d,4	2B.52	9 x 12	9 x 12	—	—	—	—
Pedestrian Signs	R10-3a,3e,3f, 3g,3h,3i,4a	2B.52	9 x 15	9 x 15	—	—	—	—
Left on Green Arrow Only	R10-5	2B.53	30 x 36	30 x 36	48 x 60	—	24 x 30	48 x 60
Stop Here on Red	R10-6	2B.53	24 x 36	24 x 36	—	—	—	36 x 48
Stop Here on Red	R10-6a	2B.53	24 x 30	24 x 30	—	—	—	36 x 42
Do Not Block Intersection	R10-7	2B.53	24 x 30	24 x 30	—	—	—	—
Use Lane with Green Arrow	R10-8	2B.53	36 x 42	36 x 42	36 x 42	—	—	60 x 72
Left (Right) Turn Signal	R10-10	2B.53	30 x 36	30 x 36	—	—	—	—
No Turn on Red	R10-11	2B.54	24 x 30	36 x 48	—	—	—	36 x 48
No Turn on Red	R10-11a	2B.54	30 x 36	36 x 48	—	—	—	—
No Turn on Red	R10-11b	2B.54	36 x 36	36 x 36	—	—	—	—
No Turn on Red Except From Right Lane	R10-11c	2B.54	30 x 42	30 x 42	—	—	—	—
No Turn on Red From This Lane	R10-11d	2B.54	30 x 42	30 x 42	—	—	—	—
Left Turn Yield on Green	R10-12	2B.53	30 x 36	30 x 36	—	—	—	—
Emergency Signal	R10-13	2B.53	42 x 30	42 x 30	—	—	—	—
Emergency Signal - Stop when Flashing Red	R10-14T	2B.53	36 x 42	36 x 42	—	—	—	—
Emergency Signal - Stop when Flashing Red (overhead)	R10-14aT	2B.53	60 x 24	60 x 24	—	—	—	—
Stop Here on Flashing Red	R10-14b	2B.53	24 x 36	24 x 36	—	—	—	36 x 48

* See Table 9B-1 for minimum size required for signs on bicycle facilities.

** State Maintained conventional roadways should use Multi-Lane as standard.

Notes: 1. Larger signs may be used when appropriate.
2. Dimensions in inches are shown as width x height.

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 4 of 5)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Turning Vehicles Yield to Peds	R10-15	2B.53	30 x 30	30 x 30	—	—	—	—
U-Turn Yield to Right Turn	R10-16	2B.53	30 x 36	30 x 36	—	—	—	—
Right on Red Arrow After Stop	R10-17a	2B.54	30 x 36	30 X 36	—	—	—	—
Left Turn Yield on Flashing Yellow Arrow	R10-17T	2B.53	30 x 30	36 x 42	—	—	—	—
Photo Enforced	R10-18a	2B.55	30 x 42	36 x 54	—	—	—	—
MON—FRI (and times) (3 lines) (plaque)	R10-20aP	2B.53	24 x 24	24 x 24	—	—	—	—
SUNDAY (and times) (2 lines) (plaque)	R10-20aP	2B.53	24 x 18	24 x 18	—	—	—	—
Crosswalk, Stop on Red	R10-23	2B.53	24 x 30	24 x 30	—	—	—	—
Push Button To Turn On Warning Lights	R10-25	2B.52	9 x 12	9 x 12	—	—	—	—
Left Turn Yield on Flashing Red Arrow After Stop	R10-27	2B.53	30 x 36	30 x 36	—	—	—	—
XX Vehicles Per Green	R10-28	2B.56	24 x 30	24 x 30	—	—	—	—
XX Vehicles Per Green Each Lane	R10-29	2B.56	36 x 24	36 x 24	—	—	—	—
Right Turn on Red Must Yield to U-Turn	R10-30	2B.54	30 x 36	30 x 36	—	—	—	—
At Signal (plaque)	R10-31P	2B.53	24 x 9	24 x 9	—	—	—	—
Push Button for 2 Seconds for Extra Crossing Time	R10-32P	2B.52	9 x 12	9 x 12	—	—	—	—
Keep Off Median	R11-1	2B.57	24 x 30	24 x 30	—	—	—	—
Road Closed	R11-2	2B.58	48 x 30	48 x 30	—	—	—	—
Bridge, Ramp, Street Closed	R11-2aT, 2bT, 2cT	2B.58	48 x 30	48 x 30	—	—	—	—
Road Closed - Local Traffic Only	R11-3a,3b,4	2B.58	60 x 30	60 x 30	—	—	—	—
Weight Limit	R12-1,2	2B.59	24 x 30	24 x 30	36 x 48	—	—	36 x 48
Weight Limit	R12-1T	2B.59	24 x 36	24 x 36	—	—	—	—
Weight Limit	R12-2cT	2B.59	24 x 36	24 x 36	—	—	—	—
Weight Limit	R12-3	2B.59	24 x 36	24 x 36	—	—	—	—
Weight Limit	R12-4	2B.59	36 x 24	36 x 24	—	—	—	—
Weight Limit	R12-4aT	2B.59	24 x 36	24 x 36	—	—	—	—
Load Zoned Bridge	R12-6aT	2B.59	Var x 36	Var x 36	—	—	—	—
Load Zoned Road	R12-6bT	2B.59	Var x 30	Var x 30	—	—	—	—
Load Zoned Road	R12-7aT	2B.59	Var x 36	Var x 36	—	—	—	—
Load Zoned Road	R12-7bT	2B.59	Var x 30	Var x 30	—	—	—	—
Load Zoned Road	R12-8aT	2B.59	78 x 36	78 x 36	—	—	—	—
Load Zoned Road	R12-8bT, 8cT	2B.59	78 x 24	78 x 24	—	—	—	—
Width Limit	R12-9T	2B.59A	24 x 36	—	—	—	—	—
Width Limit	R12-9aT	2B.59A	—	48 x 60	48 x 60	48 x 60	—	—
All Commercial Vehicles and Buses Stop Ahead when Flashing	R13-1T	2B-60	72 x 48	72 x 48	96 x 60	96 x 60	—	—
All Trucks Must Stop Ahead	R13-1aT	2B-60	48 x 36	48 x 36	48 x 36	48 x 36	—	—
Trucks-Buses Must Stop Ahead	R13-1bT	2B-60	60 x 36	60 x 36	60 x 36	60 x 36	—	—
All Trucks Next Right When Flashing	R13-1cT	2B-60	48 x 48	48 x 48	78 x 60	78 x 60	—	—
All Trucks Next Right	R13-1TP	2B-60	72 x 30	72 x 30	144 x 48	144 x 48	—	—
All Vehicles Must Stop Ahead	R13-2T	2B-60	90 x 72	90 x 72	90 x 72	90 x 72	—	—
Use Low Beams	R13-3T	2B-60	60 x 30	60 x 30	60 x 30	60 x 30	—	—
Truck Route	R14-1	2B.61	24 x 18	24 x 18	—	—	—	—
Hazardous Material	R14-2,3	2B.62	24 x 24	24 x 24	30 x 30	36 x 36	—	42 x 42
Fender Bender Move Vehicles	R16-4	2B.65	36 x 24	36 x 24	48 x 36	60 x 48	—	48 x 36
Must Follow	R14-6T	2B.62A	216 x 96	216 x 96	216 x 96	216 x 96	—	—
Stop for School Bus Loading or Unloading	R19-1T	2B.68A	48 x 60	48 x 60	—	—	—	—
No Dumping Allowed	R19-5T	2B.68A	24 x 30	24 x 30	—	—	—	—

* See Table 9B-1 for minimum size required for signs on bicycle facilities.
 ** State Maintained conventional roadways should use Multi-Lane as standard.
 Notes: 1. Larger signs may be used when appropriate.
 2. Dimensions in inches are shown as width x height.

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 5 of 5)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Littering Prohibited \$10-2000 Fine	R19-6T	2B.68A	48 x 30	48 x 30	48 x 30	48 x 30	—	—
Don't Mess With Texas	R19-6aT	2B.68A	48 x 30	48 x 30	48 x 30	48 x 30	—	—
No Fishing From Bridge	R19-7T	2B.68A	24 x 30	24 x 30	48 x 60	48 x 60	—	—
Fasten Safety Belts	R19-8T	2B.66	30 x 30	30 x 30	48 x 48	48 x 48	—	—
Next X Miles	R20-1TP	2B.68A	24 x 18	24 x 18	—	—	—	—
X Miles Ahead	R20-4TP	2B.59A	24 x 12	48 x 24	—	—	—	—

* See Table 9B-1 for minimum size required for signs on bicycle facilities.

** State Maintained conventional roadways should use Multi-Lane as standard.

Notes: 1. Larger signs may be used when appropriate
2. Dimensions in inches are shown as width x height

07 **Where side roads intersect a multi-lane street or highway that has a speed limit of 45 mph or higher, the minimum size of the STOP signs facing the side road approaches, even if the side road only has one approach lane, shall be 36 x 36 inches.**

08 **Where side roads intersect a multi-lane street or highway that has a speed limit of 40 mph or lower, the minimum size of the STOP signs facing the side road approaches shall be as shown in the Single Lane or Multi-lane columns of Table 2B-1 based on the number of approach lanes on the side street approach.**

Guidance:

09 *The minimum sizes for regulatory signs facing traffic on exit and entrance ramps should be as shown in the column of Table 2B-1 that corresponds to the mainline roadway classification (Expressway or Freeway). If a minimum size is not provided in the Freeway column, the minimum size in the Expressway column should be used. If a minimum size is not provided in the Freeway or Expressway Column, the size in the Oversized column should be used.*

Section 2B.04 Right-of-Way at Intersections

Support:

01 The Texas Transportation Code, Section 545.151 (see Section 1A.11) establishes the right-of-way rule at intersections having no regulatory traffic control signs such that the driver of a vehicle approaching an intersection must yield the right-of-way to any vehicle or pedestrian already in the intersection. When two vehicles approach an intersection from different streets or highways at approximately the same time, the right-of-way rule requires the driver of the vehicle on the left to yield the right-of-way to the vehicle on the right. The right-of-way can be modified at through streets or highways by placing YIELD (R1-2) signs (see Sections 2B.08 and 2B.09) or STOP (R1-1) signs (see Sections 2B.05 through 2B.07) on one or more approaches.

Guidance:

02 *Engineering judgment should be used to establish intersection control. The following factors should be considered:*

- A. *Vehicular, bicycle, and pedestrian traffic volumes on all approaches;*
- B. *Number and angle of approaches;*
- C. *Approach speeds;*
- D. *Sight distance available on each approach; and*
- E. *Reported crash experience.*

03 *YIELD or STOP signs should be used at an intersection if one or more of the following conditions exist:*

- A. *An intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law;*
- B. *A street entering a designated through highway or street; and/or*
- C. *An unsignalized intersection in a signalized area.*

04 *In addition, the use of YIELD or STOP signs should be considered at the intersection of two minor streets or local roads where the intersection has more than three approaches and where one or more of the following conditions exist:*

- A. *The combined vehicular, bicycle, and pedestrian volume entering the intersection from all approaches*
- B. *The ability to see conflicting traffic on an approach is not sufficient to allow a road user to stop or yield in compliance with the normal right-of-way rule if such stopping or yielding is necessary; and/or*

17 *If a raised splitter island is available on the left-hand side of a multi-lane roundabout approach, an additional YIELD sign should be placed on the left-hand side of the approach.*

Option:

18 If a raised splitter island is available on the left-hand side of a single lane roundabout approach, an additional YIELD sign may be placed on the left-hand side of the approach.

19 At wide-throat intersections or where two or more approach lanes of traffic exist on the signed approach, observance of the right-of-way control may be improved by the installation of an additional STOP or YIELD sign on the left-hand side of the road and/or the use of a stop or yield line. At channelized intersections or at divided roadways separated by a median, the additional STOP or YIELD sign may be placed on a channelizing island or in the median. An additional STOP or YIELD sign may also be placed overhead facing the approach at the intersection to improve observance of the right-of-way control.

Standard:

20 **More than one STOP sign or more than one YIELD sign shall not be placed on the same support facing in the same direction.**

Option:

21 For a yield-controlled channelized right-turn movement onto a roadway without an acceleration lane and for an entrance ramp onto a freeway or expressway without an acceleration lane, a NO MERGE AREA (W4-5P) supplemental plaque (see Section 2C.40) may be mounted below a Yield Ahead (W3-2) sign and/or below a YIELD (R1-2) sign when engineering judgment indicates that road users would expect an acceleration lane to be present.

Section 2B.11 Yield Here To Pedestrians Signs (R1-5 and R1-5a)

Standard:

01 **Yield Here To Pedestrians (R1-5, R1-5a) signs (see Figure 2B-2) shall be used if yield lines are used in advance of a marked crosswalk that crosses an uncontrolled multi-lane approach.**

Option:

02 The legend STATE LAW may be displayed at the top of the R1-5 and R1-5a, signs, if applicable.

Guidance:

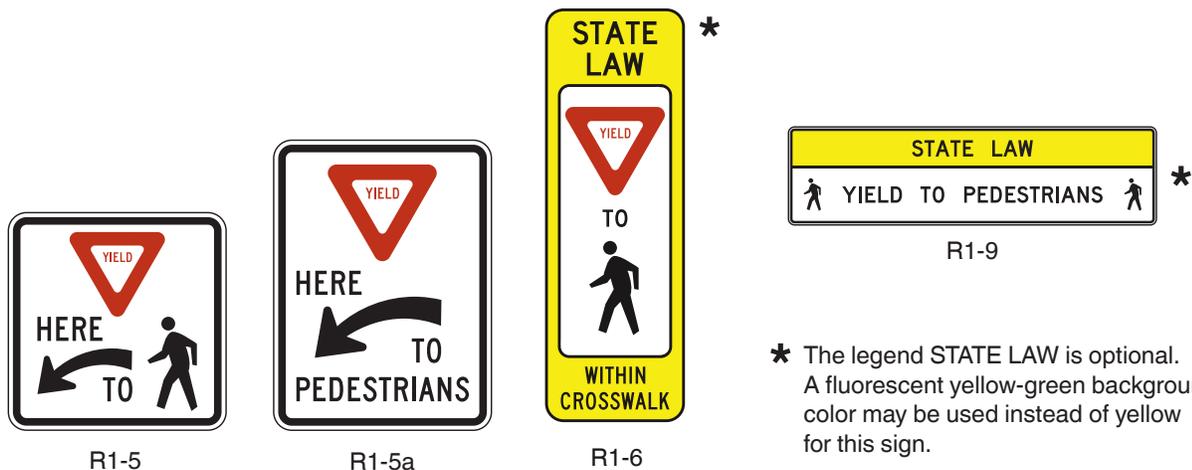
03 *If yield lines and Yield Here To Pedestrians signs are used in advance of a crosswalk that crosses an uncontrolled multi-lane approach, they should be placed 20 to 50 feet in advance of the nearest crosswalk line (see Section 3B.16 and Figure 3B-17), and parking should be prohibited in the area between the yield line and the crosswalk.*

04 *Yield lines and Yield Here To Pedestrians signs should not be used in advance of crosswalks that cross an approach to or departure from a roundabout.*

Option:

05 Yield Here To Pedestrians signs may be used in advance of a crosswalk that crosses an uncontrolled multi-lane approach to indicate to road users where to yield even if yield lines are not used.

Figure 2B-2. Unsignalized Pedestrian Crosswalk Signs



06 A Pedestrian Crossing (W11-2) warning sign may be placed overhead or may be post-mounted with a diagonal downward pointing arrow (W16-7P) plaque at the crosswalk location where Yield Here To Pedestrians signs have been installed in advance of the crosswalk.

Standard:

07 **If a W11-2 sign has been post-mounted at the crosswalk location where a Yield Here To Pedestrians sign is used on the approach, the Yield Here To Pedestrians sign shall not be placed on the same post as or block the road user's view of the W11-2 sign.**

Option:

08 An advance Pedestrian Crossing (W11-2) warning sign with an AHEAD or a distance supplemental plaque may be used in conjunction with a Yield Here To Pedestrians sign on the approach to the same crosswalk.

09 In-Street Pedestrian Crossing signs and Yield Here To Pedestrians signs may be used together at the same crosswalk.

Section 2B.12 In-Street and Overhead Pedestrian Crossing Signs (R1-6 and, R1-9)

Option:

01 The In-Street Pedestrian Crossing (R1-6) sign (see Figure 2B-2) or the Overhead Pedestrian Crossing (R1-9) sign (see Figure 2B-2) may be used to remind road users of laws regarding right-of-way at an unsignalized pedestrian crosswalk. The legend STATE LAW may be displayed at the top of the R1-6, R1-9, signs, if applicable. On the R1-6 sign, the legend YIELD may be used instead of the appropriate YIELD sign symbol.

02 Highway agencies may develop and apply criteria for determining the applicability of In-Street Pedestrian Crossing signs.

Standard:

03 **If used, the In-Street Pedestrian Crossing sign shall be placed in the roadway at the crosswalk location on the center line, on a lane line, or on a median island. The In-Street Pedestrian Crossing sign shall not be post-mounted on the left-hand or right-hand side of the roadway.**

04 **If used, the Overhead Pedestrian Crossing sign shall be placed over the roadway at the crosswalk location.**

05 **An In-Street or Overhead Pedestrian Crossing sign shall not be placed in advance of the crosswalk to educate road users about the State law prior to reaching the crosswalk, nor shall it be installed as an educational display that is not near any crosswalk.**

Guidance:

06 *If an island (see Chapter 3I) is available, the In-Street Pedestrian Crossing sign, if used, should be placed on the island.*

Option:

07 If a Pedestrian Crossing (W11-2) warning sign is used in combination with an In-Street or an Overhead Pedestrian Crossing sign, the W11-2 sign with a diagonal downward pointing arrow (W16-7P) plaque may be post-mounted on the right-hand side of the roadway at the crosswalk location.

Standard:

08 **The In-Street Pedestrian Crossing sign and the Overhead Pedestrian Crossing sign shall not be used at signalized locations.**

09 **The In-Street Pedestrian Crossing sign shall have a black legend (except for the YIELD sign symbol) and border on a white background, surrounded by an outer yellow or fluorescent yellow-green background area (see Figure 2B-2). The Overhead Pedestrian Crossing sign shall have a black legend and border on a yellow or fluorescent yellow-green background at the top of the sign and a black legend and border on a white background at the bottom of the sign (see Figure 2B-2).**

10 **Unless the In-Street Pedestrian Crossing sign is placed on a physical island, the sign support shall be designed to bend over and then bounce back to its normal vertical position when struck by a vehicle.**

Support:

11 The Provisions of Section 2A.18 concerning mounting height are not applicable for the In-Street Pedestrian Crossing sign.

Standard:

12 **The top of an In-Street Pedestrian Crossing sign shall be a maximum of 4 feet above the pavement surface. The top of an In-Street Pedestrian Crossing sign placed in an island shall be a maximum of 4 feet above the island surface.**

Figure 2B-9. Examples of Applications of Jughandle Regulatory and Guide Signing
(Sheet 1 of 3)

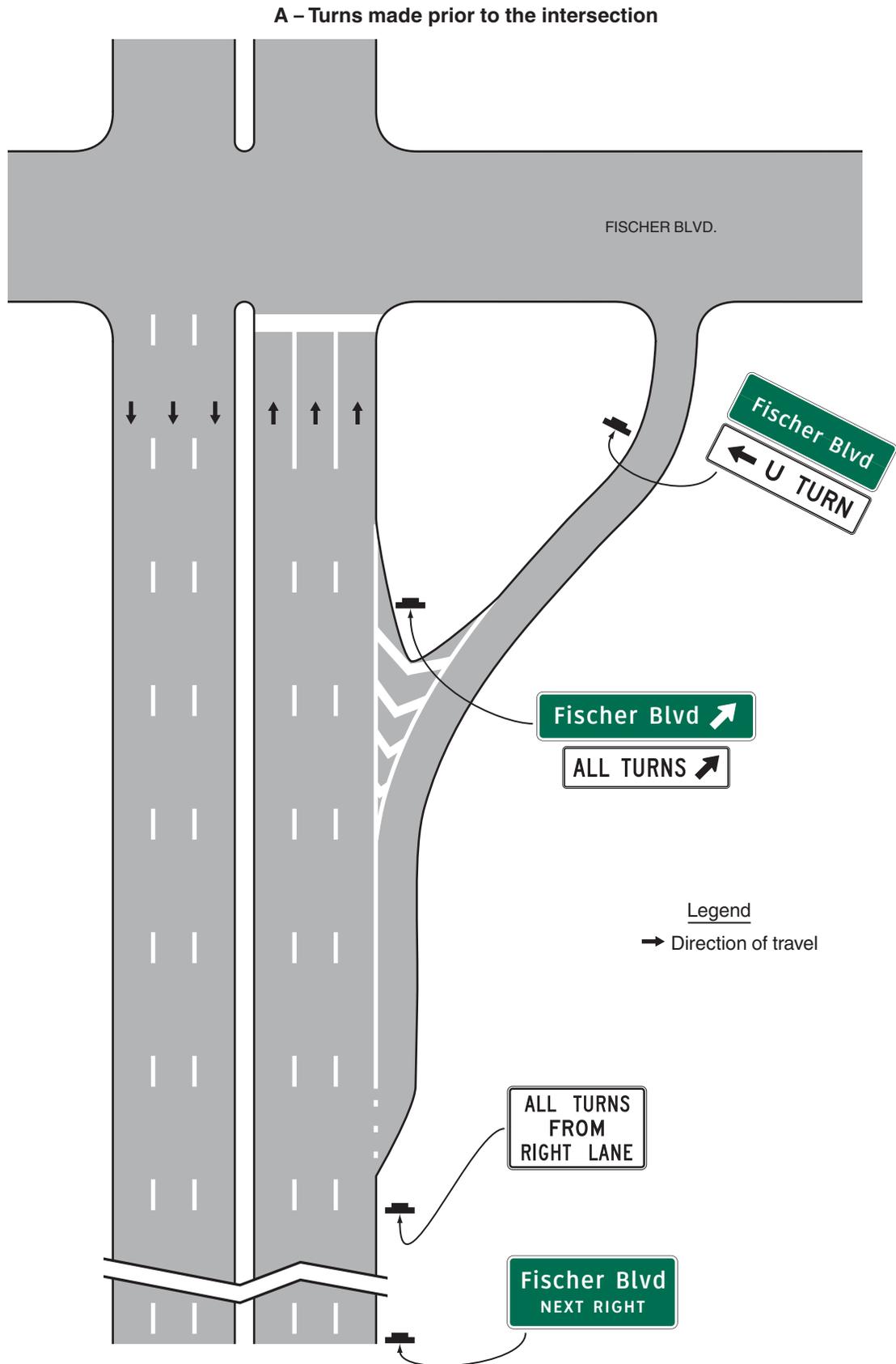


Figure 2B-9. Examples of Applications of Jughandle Regulatory and Guide Signing
(Sheet 2 of 3)

B - Traditional jughandle

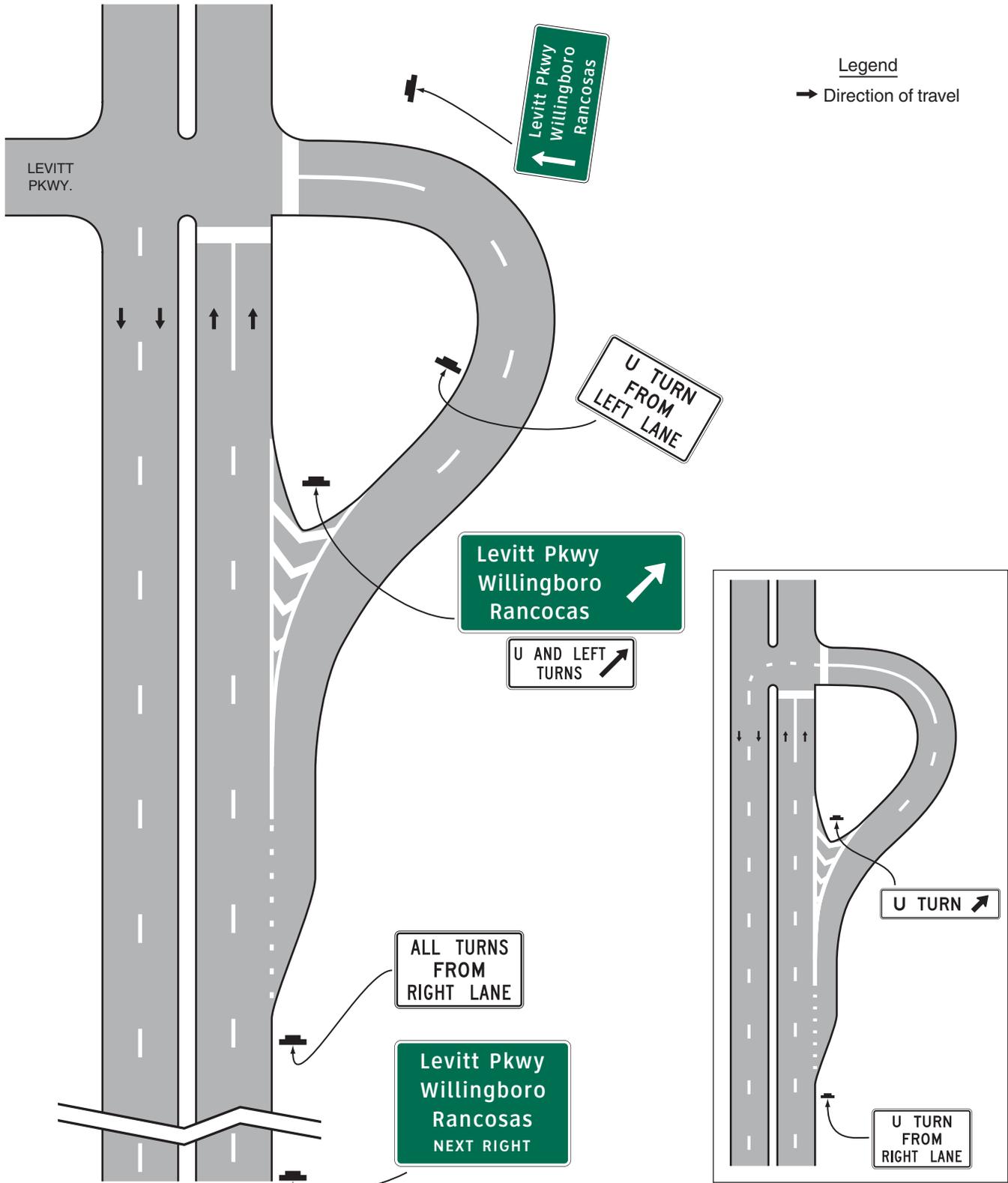
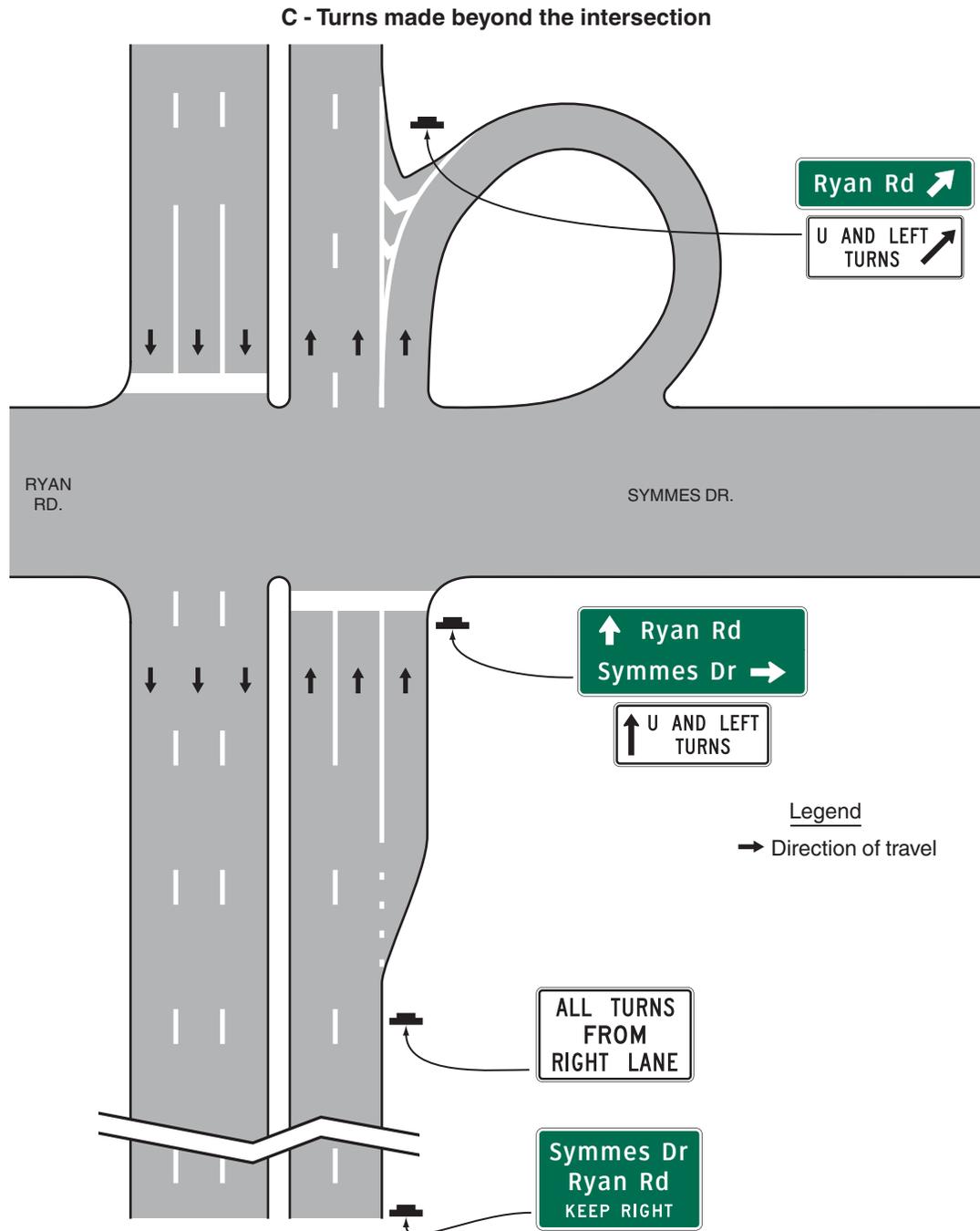


Figure 2B-9. Examples of Applications of Jughandle Regulatory and Guide Signing
(Sheet 3 of 3)



Section 2B.28 DO NOT PASS Sign (R4-1)

Option:

01 The Do Not Pass (R4-1) sign (see Figure 2B-10) may be used in addition to pavement markings (see Section 3B.02) to emphasize the restriction on passing. The Do Not Pass sign may be used at the beginning of, and at intervals within, a zone through which sight distance is restricted or where other conditions make overtaking and passing inappropriate.

02 If signing is needed on the left-hand side of the roadway for additional emphasis, NO PASSING ZONE (W14-3) signs may be used (see Section 2C.45).

Support:

03 Standards for determining the location and extent of no-passing zone pavement markings are set forth in Section 3B.02.

Section 2B.29 PASS WITH CARE Sign (R4-2)

Guidance:

01 *The PASS WITH CARE (R4-2) sign (see Figure 2B-10) should be installed at the downstream end of a no-passing zone if a DO NOT PASS sign has been installed at the upstream end of the zone.*

Section 2B.29A LEFT LANE FOR PASSING ONLY Sign (R4-2aT)

Option:

01 The LEFT LANE FOR PASSING ONLY (R4-2aT) sign (see Figure 2B-10) may be used on multiple lane roadways to direct drivers to stay in the right-hand lane except when they are passing another vehicle.

Guidance:

02 *The LEFT LANE FOR PASSING ONLY sign should be considered for use when there is a tendency on the part of the motorist to drive in the left most lane below the normal speed resulting in a preponderance of rear-end collisions or recurrent traffic flow disruptions. When used, the LEFT LANE FOR PASSING ONLY sign should be erected just beyond the beginning of a multiple-lane pavement, and at selected locations on the median strip. The LEFT LANE FOR PASSING ONLY sign should not be used on roadways that are predominately one lane in each direction with intermittent climbing lanes, the approach to an interchange or through an interchange area.*

Support:

03 Other locations could include to the right of the pavement edge of a divided highway.

Section 2B.30 SLOWER TRAFFIC KEEP RIGHT Sign (R4-3)

Option:

01 The SLOWER TRAFFIC KEEP RIGHT (R4-3) sign (see Figure 2B-10) may be used to direct vehicles into an extra lane that has been provided for slow-moving vehicles such as a "climbing lane."

Guidance:

02 *If an extra lane has been provided for slower moving traffic, the SLOWER TRAFFIC KEEP RIGHT sign should be installed at the beginning of the lane.*

Section 2B.31 ~~TRUCKS USE RIGHT LANE Sign (R4-5)~~ DELETED**Section 2B.31A BEGIN (END) NO TRUCKS LEFT LANE Signs (R4-5aT, R4-5bT, R4-5cT)**

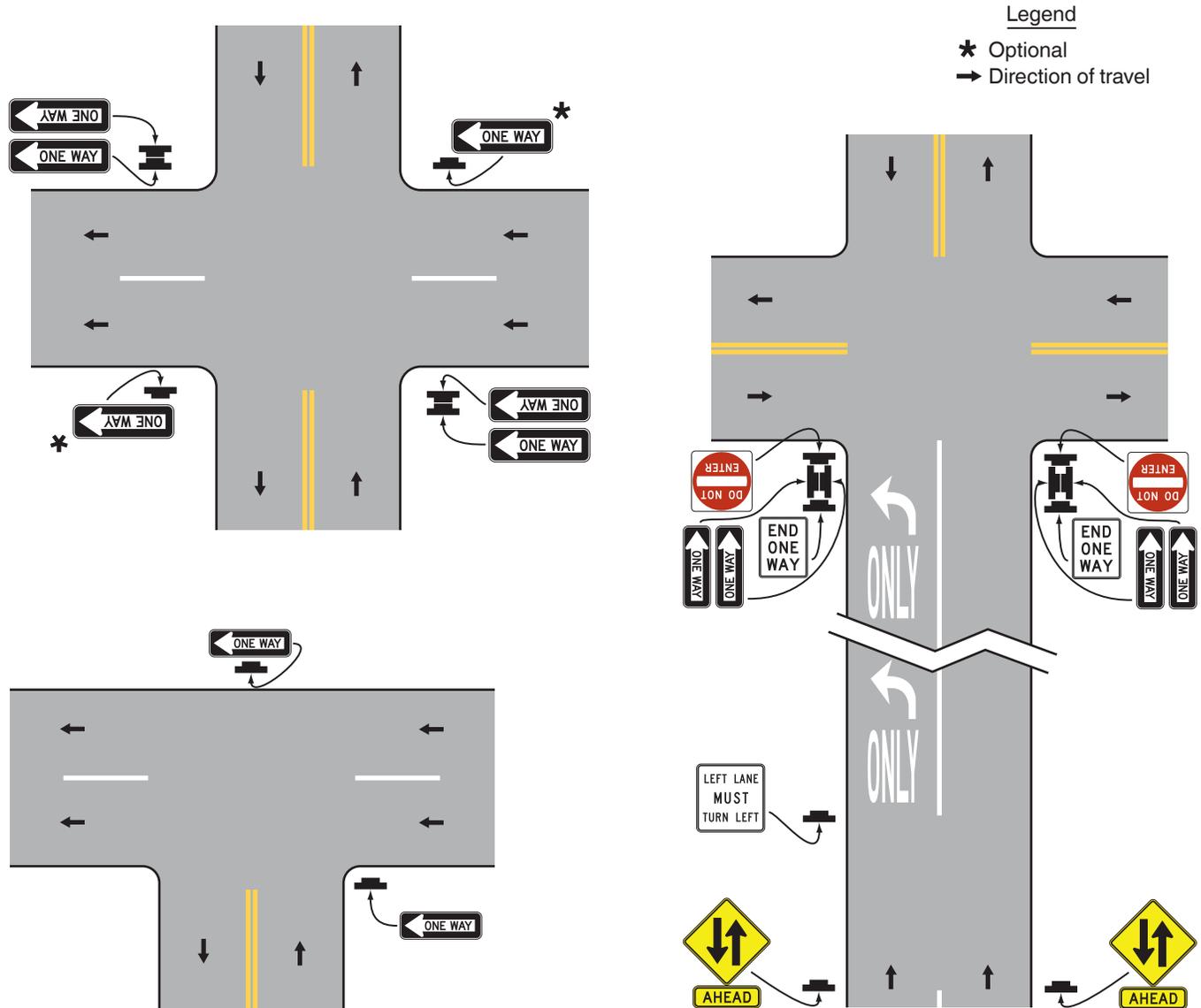
Option:

01 The BEGIN (END) NO TRUCKS LEFT LANE (R4-5aT, R4-5bT, R4-5cT) sign (see Figure 2B-10) may be used on roadways when recommended by an engineering study.

Standard:

02 **If used, TxDOT shall approve the restriction prior to installation of NO TRUCKS LEFT LANE signs for each roadway section.**

Figure 2B-14. Locations of ONE WAY Signs



signals, on the mast arm or span wire holding the signals, or at the locations specified for unsignalized intersections.

Option:

- 11 Where the central island of a roundabout allows for the installation of signs, ONE WAY signs may be used instead of or in addition to Roundabout Directional Arrow (R6-4 series) signs (see Section 2B.43) to direct traffic counter-clockwise around the central island.

Guidance:

- 12 Where used on the central island of a roundabout, the mounting height of a ONE WAY sign should be at least 4 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way.

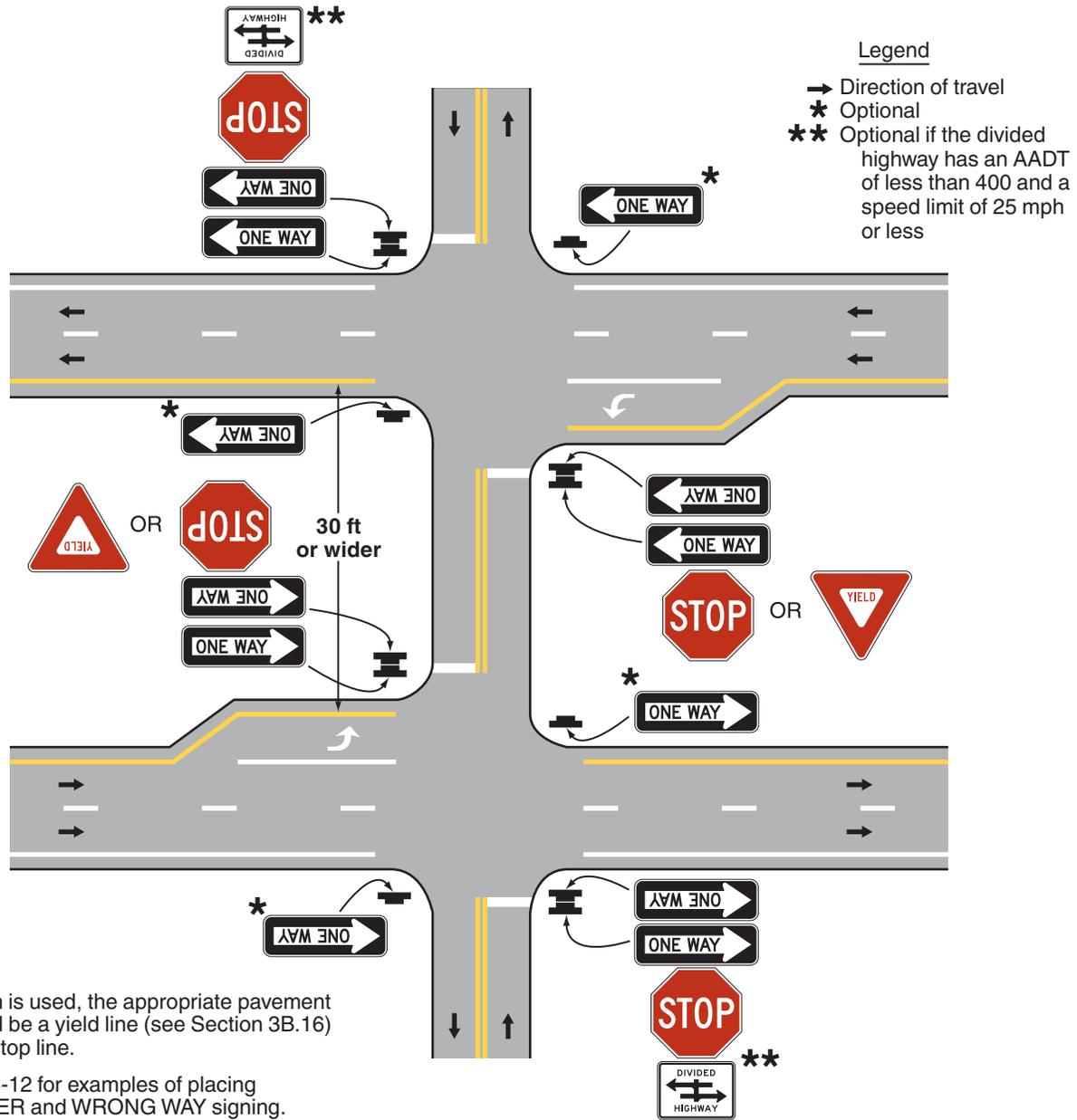
Support:

- 13 Using ONE WAY signs on the central island of a roundabout might result in some drivers incorrectly concluding that the cross street is a one-way street. Using Roundabout Directional Arrow signs might reduce this confusion.

Option:

- 14 The BEGIN ONE WAY (R6-6) sign (see Figure 2B-13) may be used to notify road users of the beginning point of a one direction of travel restriction on the street or roadway. The END ONE WAY (R6-7) sign

Figure 2B-15. ONE WAY Signing for Divided Highways with Median Widths of 30 Feet or Wider



(see Figure 2B-13) may be used to notify road users of the ending point of a one direction of travel restriction on the street or roadway.

Section 2B.41 Wrong-Way Traffic Control at Interchange Ramps

Standard:

- 01 At interchange exit ramp terminals where the ramp intersects a crossroad in such a manner that wrong-way entry could inadvertently be made, the following signs shall be used (see Figure 2B-18):
 - A. At least one ONE WAY sign for each direction of travel on the crossroad shall be placed where the exit ramp intersects the crossroad.
 - B. At least one DO NOT ENTER sign shall be conspicuously placed near the downstream end of the exit ramp in positions appropriate for full view of a road user starting to enter wrongly from the crossroad.

Option:

- 02 At roundabouts where Roundabout Directional Arrow signs and/or ONE WAY signs have been installed in the central island, Roundabout Circulation plaques may be placed below the YIELD signs on approaches to roundabouts to supplement the central island signs.
- 03 The Roundabout Circulation plaque may be used at any type of circular intersection.

Section 2B.45 Examples of Roundabout Signing

Support:

- 01 Figures 2B-21 through 2B-23 illustrate examples of regulatory and warning signing for roundabouts of various configurations.
- 02 Section 2D.38 contains information regarding guide signing at roundabouts and Chapter 3C contains information regarding pavement markings at roundabouts.

Section 2B.46 Parking, Standing, and Stopping Signs (R7 and R8 Series)

Support:

- 01 Signs governing the parking, stopping, and standing of vehicles cover a wide variety of regulations, and only general guidance can be provided here. The word “standing” when used on the R7 and R8 series of signs refers to the practice of a driver keeping the vehicle in a stationary position while continuing to occupy the vehicle. Typical examples of parking, stopping, and standing signs and plaques (see Figures 2B-24 and 2B-25) are as follows:
1. NO PARKING ANY TIME (R7-1);
 2. NO PARKING X:XX AM TO X:XX PM (R7-2, R7-2a);
 3. NO PARKING EXCEPT SUNDAYS AND HOLIDAYS (R7-3);
 4. NO STANDING ANY TIME (R7-4);
 5. XX HOUR PARKING
X:XX AM – X:XX PM (R7-5);
 6. NO PARKING LOADING ZONE (R7-6);
 7. NO PARKING BUS STOP (R7-7, R7-107, R7-107a);
 8. RESERVED PARKING
for persons with disabilities (R7-8T);
 9. VAN ACCESSIBLE (R7-8P);
 10. PARALLEL PARKING (R7-11T);
 11. Pay Station (R7-20);
 12. Pay Parking (R7-21, R7-21a, R7-22);
 13. Parking Permitted
X:XX AM TO X:XX PM (R7-23);
 14. Parking Permitted
XX HOUR(S) XX AM – XX PM (R7-23a);
 15. XX HR PARKING X:XX AM TO X:XX PM (R7-108);
 16. NO PARKING ANYTIME/XX HOUR PARKING X:XX AM – X:XX PM (R7-200, R7-200a);

Figure 2B-24. Parking and Standing Signs and Plaques (R7 Series) (Sheet 2 of 2)



Figure 2B-25. Parking and Stopping Signs and Plaques (R8 Series)

17. TOW-AWAY ZONE (R7-201P, R7-201aP);
18. THIS SIDE OF SIGN (R7-202P);
19. EMERGENCY SNOW ROUTE NO PARKING IF OVER XX INCHES (R7-203);
20. NO PARKING ON PAVEMENT (R8-1);
21. NO PARKING EXCEPT ON SHOULDER (R8-2);
22. No Parking (R8-3, R8-3a, R8-3aT);
23. EXCEPT SUNDAYS AND HOLIDAYS (R8-3bP);
24. ON PAVEMENT (R8-3cP);
25. ON BRIDGE (R8-3dP);
26. ON TRACKS (R8-3eP);
27. EXCEPT ON SHOULDER (R8-3fP);
28. LOADING ZONE (R8-3gP);
29. X:XX AM TO X:XX PM (R8-3hP);
30. NO TRUCK PARKING (R8-3kT);
31. EMERGENCY PARKING ONLY (R8-4);
32. NO STOPPING ON PAVEMENT (R8-5);
33. NO STOPPING EXCEPT ON SHOULDER (R8-6); and
34. EMERGENCY STOPPING ONLY (R8-7).

Section 2B.47 Design of Parking, Standing, and Stopping Signs

Support:

- 01 Discussions of parking signs and parking regulations in this Section apply not only to parking, but also to standing and stopping.

Standard:

- 02 **The legend on parking signs shall state applicable regulations. Parking signs (see Figures 2B-24 and 2B-25) shall comply with the standards of shape, color, and location.**
- 03 **Where parking is prohibited at all times or at specific times, the basic design for parking signs shall have a red legend and border on a white background (Parking Prohibition signs), except that the R8-4 and R8-7 signs and the alternate design for the R7-201P plaque shall have a black legend and border on a white background, and the R8-3 sign shall have a black legend and border and a red circle and slash on a white background.**
- 04 **Where only limited-time parking or parking in a particular manner are permitted, the signs shall have a green legend and border on a white background (Permissive Parking signs).**

Guidance:

- 05 *Parking signs should display the following information from top to bottom of the sign, in the order listed:*
- A. *The restriction or prohibition;*
 - B. *The times of the day that it is applicable, if not at all hours; and*
 - C. *The days of the week that it is applicable, if not every day.*
- 06 *If the parking restriction applies to a limited area or zone, the limits of the restriction should be shown by arrows or supplemental plaques. If arrows are used and if the sign is at the end of a parking zone, there should be a single-headed arrow pointing in the direction that the regulation is in effect. If the sign is at an intermediate point in a zone, there should be a double-headed arrow pointing both ways. When a single sign is used at the transition point between two parking zones, it should display a right and left arrow pointing in the direction that the respective restrictions apply.*
- 07 *Where special parking restrictions are imposed during heavy snowfall, Emergency Snow Route (R7-203) signs (see Figure 2B-24) should be installed. The legend will vary according to the regulations, but the signs should be vertical rectangles, having a white background with the upper part of the plate a red background.*

Standard:

- 08 **Where parking spaces that are reserved for persons with disabilities are designated to accommodate wheelchair vans, a VAN ACCESSIBLE (R7-8P) plaque shall be mounted below the R7-8T sign. The R7-8T sign (see Figure 2B-24) shall have a green legend and border and a white wheelchair symbol on a blue square, all on a white background. The R7-8P plaque (see Figure 2B-24) shall have a green legend and border on a white background.**

Option:

- 09 To minimize the number of parking signs, blanket regulations that apply to a given district may, if legal, be posted at district boundary lines.
- 10 As an alternate to the use of arrows to show designated restriction zones, word messages such as BEGIN, END, HERE TO CORNER, HERE TO ALLEY, THIS SIDE OF SIGN, or BETWEEN SIGNS may be used.
- 11 Where parking is prohibited during certain hours and time-limited parking or parking in a particular manner is permitted during certain other time periods, the red Parking Prohibition and green Permissive Parking signs may be designed as follows:
- A. Two 12 x 18-inch parking signs may be used with the red Parking Prohibition sign installed above or to the left of the green Permissive Parking sign; or
 - B. The red Parking Prohibition sign and the green Permissive Parking sign may be combined (see Figure 2B-24) to form an R7-200 sign on a single 24 x 18-inch sign, or an R7-200a sign on a single 12 x 30-inch sign.
- 12 At the transition point between two parking zones, a single sign or two signs mounted side by side may be used.
- 13 The words NO PARKING may be used as an alternative to the No Parking symbol. The supplemental educational plaque, NO PARKING, with a red legend and border on a white background, may be used above signs incorporating the No Parking symbol.
- 14 Alternate designs for the R7-107 sign may be developed such as the R7-107a sign (see Figure 2B-24). Alternate designs may include, on a single sign, a transit logo, an approved bus symbol, a parking prohibition, the words BUS STOP, and an arrow. The preferred bus symbol color is black, but other dark colors may be used. Additionally, the transit logo may be displayed on the bus face in the appropriate colors instead of placing the logo separately. The reverse side of the sign may contain bus routing information.

- 15 To make the parking regulations more effective and to improve public relations by giving a definite warning, a TOW-AWAY ZONE (R7-201aP) plaque (see Figure 2B-24) may be appended to, or incorporated in, any parking prohibition sign. The Tow-Away Zone (R7-201P) symbol plaque may be used instead of the R7-201aP word message plaque. The R7-201P plaque may have either a black or red legend and border on a white background.

Guidance:

- 16 *If a fee is charged for parking and a midblock pay station is used instead of individual parking meters for each parking space, pay parking signs should be used. Pay Parking (R7-22) signs (see Figure 2B-24) should be used to define the area where the pay station parking applies. Pay Station (R7-20) signs (see Figure 2B-24) should be used at the pay station or to direct road users to the pay station.*

Standard:

- 17 **If the pay parking is subject to a maximum time limit, the appropriate time limit (number of hours or minutes) shall be displayed on the Pay Parking (R7-21 or R7-21a) and Pay Station (R7-20) signs.**

Option:

- 18 In rural areas (see Figure 2B-25), the legends NO PARKING ON PAVEMENT (R8-1) or NO STOPPING ON PAVEMENT (R8-5) are generally suitable and may be used. If a roadway has paved shoulders, the NO PARKING EXCEPT ON SHOULDER sign (R8-2) or the NO STOPPING EXCEPT ON SHOULDER sign (R8-6) may be used as these signs would be less likely to cause confusion. The R8-3 symbol sign or the word message NO PARKING (R8-3a) sign may be used to prohibit any parking along a given highway. Word message supplemental plaques may be mounted below the R8-3 or R8-3a sign. These word message supplemental plaques may include legends such as EXCEPT SUNDAYS AND HOLIDAYS (R8-3bP), ON PAVEMENT (R8-3cP), ON BRIDGE (R8-3dP), ON TRACKS (R8-3eP), EXCEPT ON SHOULDERS (R8-3fP), LOADING ZONE (with arrow) (R8-3gP), and X:XX AM TO X:XX PM (with arrow) (R8-3hP).

- 19 Colors that are in compliance with the provisions of Section 2A.10 may be used for color coding of parking time limits.

Guidance:

- 20 *If colors are used for color coding of parking time limits, the colors green, red, and black should be the only colors that are used.*

Section 2B.48 Placement of Parking, Stopping, and Standing Signs

Guidance:

- 01 *When signs with arrows are used to indicate the extent of the restricted zones, the signs should be set at an angle of not less than 30 degrees or more than 45 degrees with the line of traffic flow in order to be visible to approaching traffic.*
- 02 *Spacing of signs should be based on legibility and sign orientation.*
- 03 *If the zone is unusually long, signs showing a double arrow should be used at intermediate points within the zone.*

Standard:

- 04 **If the signs are mounted at an angle of 90 degrees to the curb line, two signs shall be mounted back to back at the transition point between two parking zones, each with an appended THIS SIDE OF SIGN (R7-202P) supplemental plaque.**

Guidance:

- 05 *If the signs are mounted at an angle of 90 degrees to the curb line, signs without any arrows or appended plaques should be used at intermediate points within a parking zone, facing in the direction of approaching traffic. Otherwise the standards of placement should be the same as for signs using directional arrows.*

Section 2B.48A Placement of Handicapped Parking Signs (R7-8T)

Guidance:

- 01 *The Handicapped Parking (R7-8T) sign (see Figure 2B-24) should be used to define which parking space or spaces are reserved for the disabled or handicapped in accordance with State Law.*

Option:

- 02 The supplemental word message VAN ACCESSIBLE (R7-8P) plaque (see Figure 2B-24) may be mounted below the R7-8T sign.

Standard:

- 03 **Where a guide sign is needed to direct motorists to van-accessible parking facilities, the sign shall have white legend on a blue background with an appropriate directional arrow.**

- 04 The No Pedestrian Crossing (R9-3) sign may be used to prohibit pedestrians from crossing a roadway at an une leg that cannot be crossed.

Guidance:

- 05 *The R9-3bP plaque should not be installed in combination with educational plaques.*

Section 2B.52 Traffic Signal Pedestrian and Bicycle Actuation Signs (R10-1 through R10-4, and R10-24 through R10-26)

Standard:

- 01 **Traffic Signal signs applicable to pedestrian actuation (see Figure 2B-26) or bicyclist actuation (see Figure 9B-2) shall be mounted immediately above or incorporated into the pushbutton detector units (see Section 4E.08).**

Support:

- 02 Traffic Signal signs applicable to pedestrians include:
- A. CROSS ONLY ON GREEN (symbolic circular green) (R10-1);
 - B. CROSS ONLY ON (symbolic walk indication) SIGNAL (R10-2);
 - C. Push Button for Walk Signal (R10-3 series); and
 - D. Push Button for Green Signal (R10-4 series).

Option:

- 03 The following signs may be used as an alternate for the R10-3 and R10-4 signs:
- A. Push Button to Cross Street Wait for Walk Signal (R10-3a); or
 - B. Push Button to Cross Street Wait for Green Signal (R10-4a).
- 04 The name of the street to be crossed may be substituted for the word STREET in the legends on the R10-3a and R10-4a signs.

Guidance:

- 05 *The finger in the pushbutton symbol on the R10-3, R10-3a, R10-4, and R10-4a signs should point in the same direction as the arrow on the sign.*

Option:

- 06 Where symbol-type pedestrian signal indications are used, an educational sign (R10-3b) may be used instead of the R10-3 sign to improve pedestrian understanding of pedestrian indications at signalized intersections. Where word-type pedestrian signal indications are being retained for the remainder of their useful service life, the legends WALK/DONT WALK may be substituted for the symbols on the educational sign R10-3b, thus creating educational sign R10-3c. The R10-3d educational sign may be used to inform pedestrians that the pedestrian clearance time is sufficient only for the pedestrian to cross to the median at locations where pedestrians cross in two stages using a median refuge island. The R10-3e educational sign may be used where countdown pedestrian signals have been provided. In order to assist the pedestrian in understanding which pushbutton to push, the R10-3f to R10-3i educational signs that provide the name of the street to be crossed may be used instead of the R10-3b to R10-3e educational signs.
- 07 The R10-24 or R10-26 sign (see Section 9B.11) may be used where a pushbutton detector has been installed exclusively to actuate a green phase for bicyclists.
- 08 The R10-25 sign (see Figure 2B-26) may be used where a pushbutton detector has been installed for pedestrians to activate In-Roadway Warning Lights (see Chapter 4N) or flashing beacons that have been added to the pedestrian warning signs.

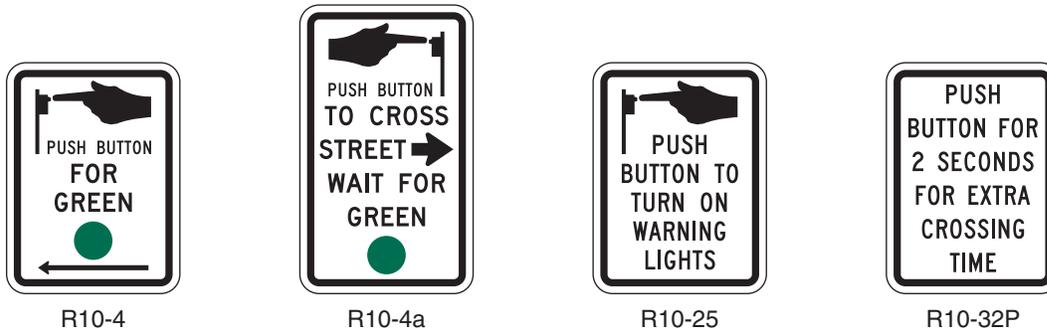
Support:

- 09 Section 4E.08 contains information regarding the application of the R10-32P plaque.

Section 2B.53 Traffic Signal Signs (R10-5 through R10-30)

Option:

- 01 To supplement traffic signal control, Traffic Signal signs R10-5 through R10-30 may be used to regulate road users.
- 02 Traffic Signal signs (see Figure 2B-27) may be installed at certain locations to clarify signal control. Among the legends that may be used for this purpose are LEFT ON GREEN ARROW ONLY (R10-5), STOP HERE ON RED (R10-6 or R10-6a), STOP HERE ON FLASHING RED (R10-14b) for observance of stop lines, DO NOT BLOCK INTERSECTION (R10-7) for avoidance of traffic obstructions, USE LANE(S) WITH GREEN ARROW (R10-8) for obedience to lane-use control signals (see Chapter 4M), LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12), LEFT TURN YIELD ON FLASHING YELLOW ARROW (R10-17T), and LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27).

Figure 2B-26. Pedestrian Signs and Plaques (Sheet 2 of 2)**Guidance:**

- 03 If used, the LEFT ON GREEN ARROW ONLY (R10-5) sign, the LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12) sign, or the LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign should be located adjacent to the left-turn signal face.

Option:

- 04 If needed for additional emphasis, an additional LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12) sign with an AT SIGNAL (R10-31P) supplemental plaque (see Figure 2B-27) may be installed in advance of the intersection.
- 05 In situations where traffic control signals are coordinated for progressive timing, the Traffic Signal Speed (I1-1) sign may be used (see Section 2H.03).

Standard:

- 06 The CROSSWALK STOP ON RED (symbolic circular red) (R10-23) sign (see Figure 2B-27) shall only be used in conjunction with pedestrian hybrid beacons (see Section 4F.02).
- 07 The EMERGENCY SIGNAL (R10-13) or EMERGENCY SIGNAL STOP WHEN FLASHING RED (R10-14T, R10-14aT) sign (see Figure 2B-27) shall be used in conjunction with emergency-vehicle traffic control signals (see Section 4G.02).

Option:

- 08 In order to remind drivers who are making turns to yield to pedestrians, a Turning Vehicles Yield to Pedestrians (R10-15) sign (see Figure 2B-27) may be used.
- 09 A U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Figure 2B-27) may be installed near the left-turn signal face if U-turns are allowed on a protected left-turn movement on an approach from which a right-turn GREEN ARROW signal indication is simultaneously being displayed to drivers making a right turn from the conflicting approach to their left.

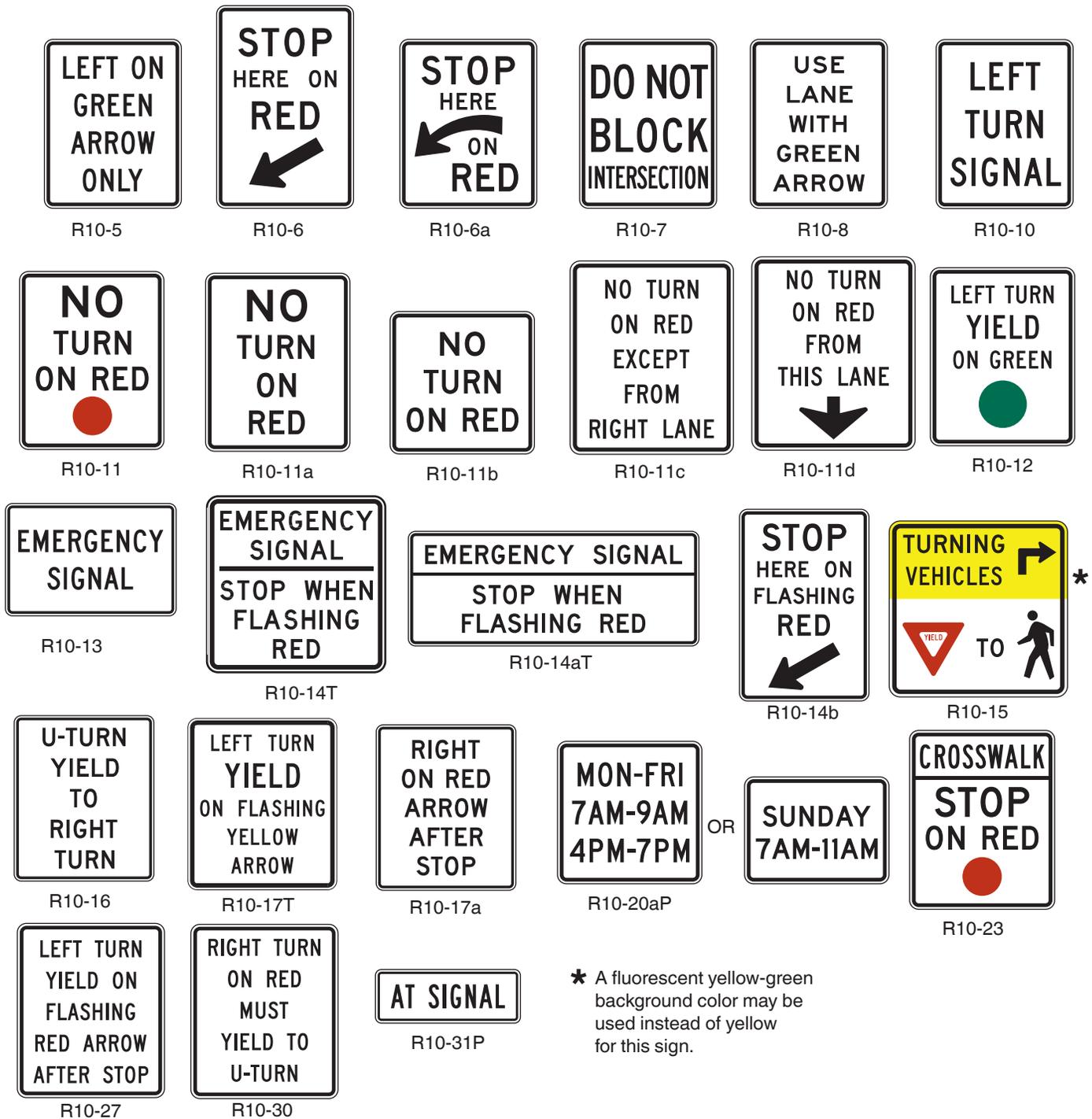
Section 2B.54 No Turn on Red Signs (R10-11 Series, R10-17a, and R10-30)**Standard:**

- 01 Where a right turn on red (or a left turn on red from a one-way street to a one-way street) is to be prohibited, a symbolic NO TURN ON RED (symbolic circular red) (R10-11) sign (see Figure 2B-27) or a NO TURN ON RED (R10-11a, R10-11b) word message sign (see Figure 2B-27) shall be used.

Guidance:

- 02 If used, the No Turn on Red sign should be installed near the appropriate signal head.
- 03 A No Turn on Red sign should be considered when an engineering study finds that one or more of the following conditions exists:
- Inadequate sight distance to vehicles approaching from the left (or right, if applicable);
 - Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;
 - An exclusive pedestrian phase;
 - An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities;
 - More than three right-turn-on-red accidents reported in a 12-month period for the particular approach; or
 - The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.

Figure 2B-27. Traffic Signal Signs and Plaques



Option:

- 04 A supplemental R10-20aP plaque (see Figure 2B-27) showing times of day (similar to the S4-1P plaque shown in Figure 7B-1) with a black legend and border on a white background may be mounted below a No Turn on Red sign to indicate that the restriction is in place only during certain times.
- 05 Alternatively, a blank-out sign may be used instead of a static NO TURN ON RED sign, to display either the NO TURN ON RED legend or the No Right Turn symbol or word message, as appropriate, only at certain times during the day or during one or more portion(s) of a particular cycle of the traffic signal.

- 06 On signalized approaches with more than one right-turn lane, a NO TURN ON RED EXCEPT FROM RIGHT LANE (R10-11c) sign (see Figure 2B-27) may be post-mounted at the intersection or a NO TURN ON RED FROM THIS LANE (with down arrow) (R10-11d) sign (see Figure 2B-27) may be mounted directly over the center of the lane from which turns on red are prohibited.

Guidance:

- 07 Where turns on red are permitted and the signal indication is a steady RED ARROW, the RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign (see Figure 2B-27) should be installed adjacent to the RED ARROW signal indication.

Option:

- 08 A RIGHT TURN ON RED MUST YIELD TO U-TURN (R10-30) sign (see Figure 2B-27) may be installed to remind road users that they must yield to conflicting u-turn traffic on the street or highway onto which they are turning right on a red signal after stopping.

Section 2B.55 Traffic Signal Photo Enforced Sign (R10-18a)

Option:

- 01 A Traffic Signal Photo Enforced (R10-18a) sign (see Figure 2B-3) may be installed on an approach to a signalized location where red-light cameras are present on any approach to the signalized location.

Standard:

- 02 **The Traffic Signal Photo Enforced (R10-18a) sign shall not be installed on approaches to signalized locations where red-light cameras are not present on any of the approaches to the signalized location.**

- 03 **If used, the Traffic Signal Photo Enforced (R10-18a) sign shall be individually installed on a separate post or mounting. A Traffic Signal Photo Enforced (R10-18a) sign shall not be installed on the same support in combination with a Signal Ahead (W3-3) sign.**

Option:

- 04 A Signal Ahead (W3-3) warning sign with a PHOTO ENFORCED (W16-10aP) plaque mounted below may be used instead of the R10-18a sign to provide notice to road users that photo enforcement of red-light running is present on a particular approach to a signalized location (see Section 2C.36 and Section 2C.61).

- 05 A Signal Ahead (W3-3) sign and a Traffic Signal Photo Enforced (R10-18a) sign may be used on the same approach provided that they are on separate supports.

Guidance:

- 06 *If used, the Traffic Signal Photo Enforced (R10-18a) sign should be located on the right-hand side of the roadway far enough in advance of the stop line to provide adequate notice to approaching road users.*

Option:

- 07 On one-way streets or where a median of sufficient width is present, an additional Traffic Signal Photo Enforced (R10-18a) sign may be placed on the left-hand side of the roadway in accordance with Paragraph 11 of Section 2A.16.

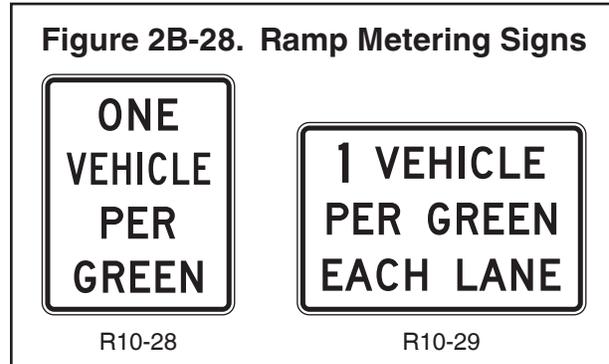
Guidance:

- 08 *If used, the Traffic Signal Photo Enforced (R10-18a) sign should be located such that it does not block or obscure the road user's view of other signs or traffic control devices.*

Section 2B.56 Ramp Metering Signs (R10-28 and R10-29)

Option:

- 01 When ramp control signals (see Chapter 4I) are used to meter traffic on a freeway or expressway entrance ramp, regulatory signs with legends appropriate to the control may be installed adjacent to the ramp control signal faces.



Guidance:

- 02 The *WIDTH LIMIT* sign should be installed near an intersection that will provide an acceptable alternate route for loads that exceed the specified limit.

Section 2B.60 Commercial Motor Vehicle (CMV), U.S. Border Patrol Inspection and Weigh Station Signs (R13 Series)

Guidance:

- 01 An R13-1T sign with the legend *ALL COMMERCIAL VEHICLES & BUSES STOP AHEAD WHEN FLASHING* (see Figure 2B-30) should be used to direct appropriate traffic into a Commercial Motor Vehicle (CMV) Inspection Station.
- 02 The R13-1T sign should be supplemented by the D8 series of guide signs (see Section 2D.49).
- 03 An R13-2T sign with the legend *ALL VEHICLES MUST STOP AHEAD WHEN FLASHING* (see Figure 2B-30) should be used to direct all traffic into a U.S. Border Patrol Inspection Station or Weigh Station.
- 04 The R13-2T sign should be supplemented by the D8 series of guide signs (see Section 2D.49)

Section 2B.61 TRUCK ROUTE Sign (R14-1)

Guidance:

- 01 The *TRUCK ROUTE (R14-1)* sign (see Figure 2B-30) should be used to mark a route that has been designated to allow truck traffic.

Figure 2B-30. Truck Signs

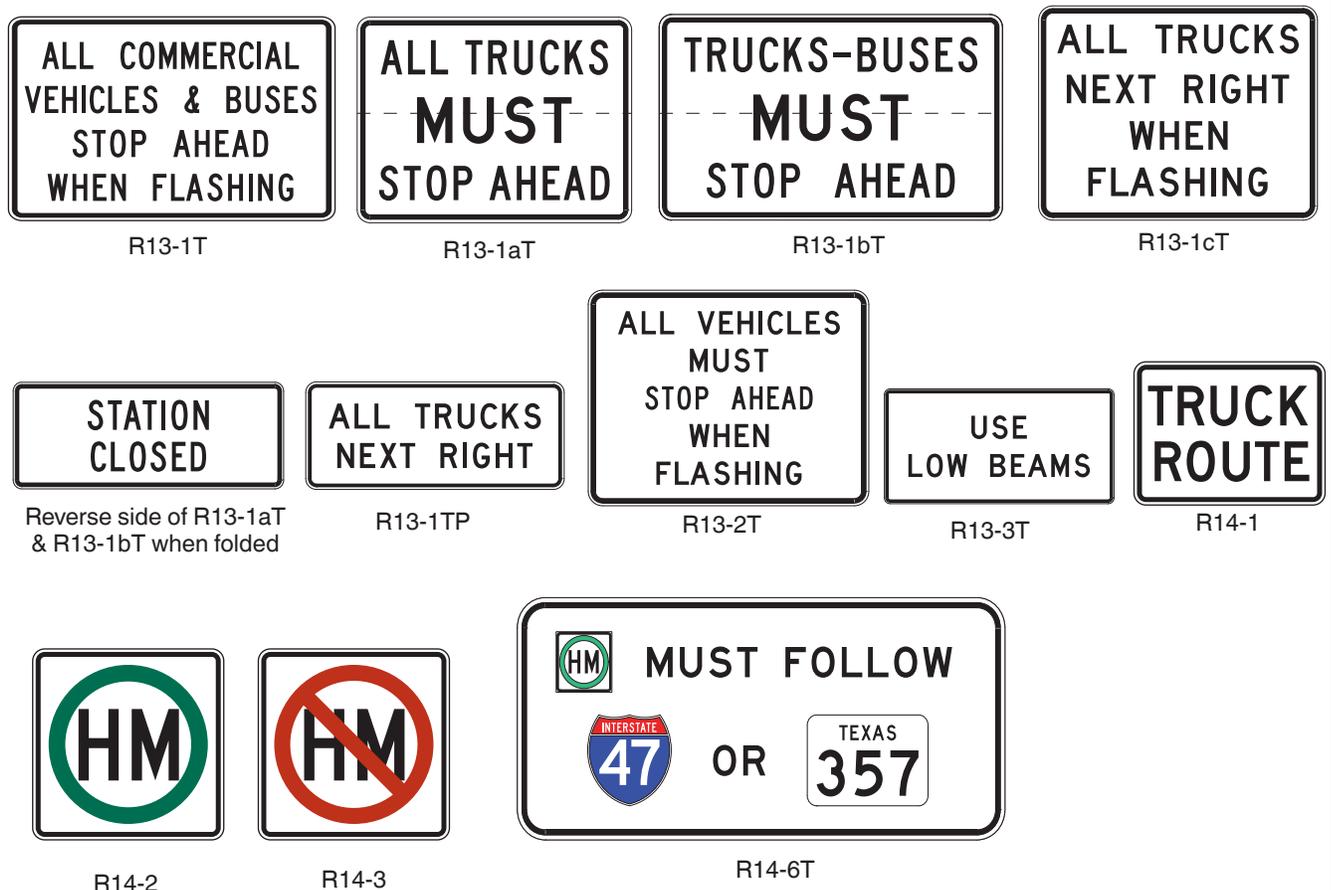


Figure 2B-31. DELETED

Option:

- 02 On a numbered highway, the TRUCK (M4-4) auxiliary sign may be used (see Section 2D.20).

Section 2B.62 Hazardous Material Signs (R14-2, R14-3)

Guidance:

- 01 The Hazardous Material Route (R14-2) sign (see Figure 2B-30) should be used to identify routes that have been designated by proper authority for vehicles transporting hazardous material.
- 02 On routes where the transporting of hazardous material is prohibited, the Hazardous Material Prohibition (R14-3) sign (see Figure 2B-30) should be used.

Standard:

- 03 The Hazardous Material routes shall be designated by proper authority.

Guidance:

- 04 If used, the Hazardous Material Prohibition sign should be installed on a street or roadway at a point where vehicles transporting hazardous material have the opportunity to take an alternate route.

Section 2B.62A HAZARDOUS MATERIALS MUST FOLLOW Sign (R14-6T)

Guidance:

- 01 The HAZARDOUS MATERIALS MUST FOLLOW (R14-6T) sign (see Figure 2B-30) should be used to give the vehicle operator advance notice of the designated route(s) to be taken by vehicles transporting a hazardous materials.

Standard:

- 02 The Hazardous Material routes shall be designated by proper authority.

Option:

- 03 This sign may be used in conjunction with other regulatory signs.

Section 2B.63 National Network Signs (R14-4, R14-5) DELETED

Section 2B.64 Headlight Use Signs (R16-5 through R16-11) DELETED

Section 2B.65 FENDER BENDER Sign (R16-4)

Option:

- 01 A FENDER BENDER MOVE VEHICLES FROM TRAVEL LANES (R16-4) sign (see Figure 2B-32) may be installed to require motorists to move their vehicle out of the travel lanes if they have been involved in a crash.

Figure 2B-32. Other Regulatory Signs and Symbols

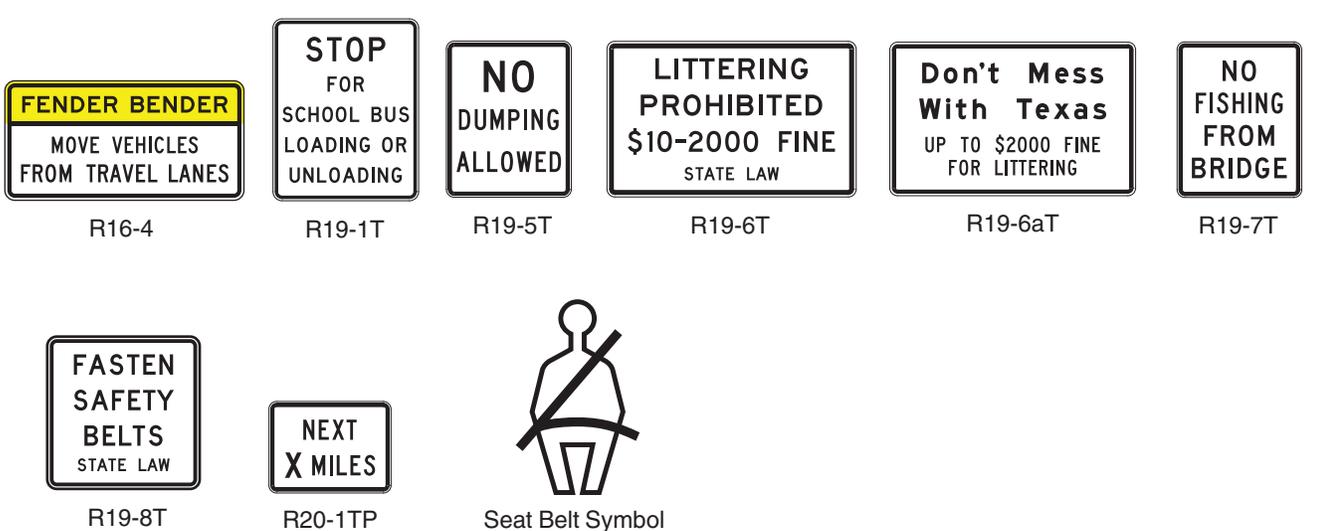


Table 2C-2. Warning Sign and Plaque Sizes (Sheet 1 of 3)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Horizontal Alignment	W1-1,2,3,4,5	2C.07	30 x 30*	36 x 36	36 x 36	36 x 36	—	48 x 48
Combination Horizontal Alignment/Advisory Speed	W1-1a,2a	2C.10	36 x 36	36 x 36	48 x 48	48 x 48	—	48 x 48
One-Direction Large Arrow	W1-6	2C.12	48 x 24	48 x 24	60 x 30	60 x 30	—	60 x 30
Two-Direction Large Arrow	W1-7	2C.47	48 x 24	48 x 24	—	—	—	60 x 30
Chevron/Two-Direction Large Arrow	W1-7T	2C.47	96 x 36	96 x 36	144 x 36	144 x 36	—	—
Chevron Alignment	W1-8	2C.09	18 x 24	18 x 24	30 x 36	36 x 48	—	24 x 30
Chevron/One Direction Large Arrow	W1-9T	2C.12	96 x 36	96 x 36	144 x 36	144 x 36	—	—
Combination Horizontal Alignment/Intersection	W1-10,10a,10b,10c,10d,10e	2C.11	36 x 36	36 x 36	36 x 36	48 x 48	—	—
Hairpin Curve	W1-11	2C.07	30 x 30	30 x 30	36 x 36	48 x 48	—	48 x 48
Curve Blocks View	W1-11T	2C.07	30 x 30*	36 x 36	36 x 36	48 x 48	—	48 x 48
Curve Blocks View	W1-11TP	2C.07	24 x 18	24 x 18	24 x 18	—	—	—
Truck Rollover	W1-13	2C.13	36 x 36	36 x 36	36 x 36	48 x 48	—	36 x 36
270-degree Loop	W1-15	2C.07	30 x 30	30 x 30	36 x 36	48 x 48	—	48 x 48
Intersection Warning	W2-1,2,3,4,5,6,7,8	2C.46	30 x 30	30 x 30	36 x 36	—	24 x 24	48 x 48
Highway Intersection Ahead	W2-1aT	2C.46A	48 x 48	48 x 48	48 x 48	—	—	—
Traffic Island Ahead	W2-6aT	2C.46B	36 x 36	36 x 36	—	—	—	—
Stop, Yield, or Signal Ahead	W3-1,2,3	2C.36	30 x 30	30 x 30	48 x 48	48 x 48	30 x 30	—
Be Prepared to Stop	W3-4	2C.36	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30	—
Reduced Speed Limit Ahead	W3-5	2C.38	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Draw Bridge	W3-6	2C.39	36 x 36	36 x 36	48 x 48	—	—	60 x 60
Ramp Meter Ahead	W3-7	2C.37	36 x 36	36 x 36	—	—	—	—
Ramp Metered When Flashing	W3-8	2C.37	36 x 36	36 x 36	—	—	—	—
Merging Traffic	W4-1	2C.40	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Thru Traffic Merge Right	W4-1aT	2C.40	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Lane Ends	W4-2	2C.42	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Added Lane	W4-3	2C.41	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Cross Traffic Does Not Stop (plaque)	W4-4P	2C.59	24 x 12	24 x 12	36 x 18	—	—	48 x 24
Traffic From Left (Right) Does Not Stop (plaque)	W4-4aP	2C.59	24 x 12	24 x 12	36 x 18	—	—	48 x 24
Oncoming Traffic Does Not Stop (plaque)	W4-4bP	2C.59	24 x 12	24 x 12	36 x 18	—	—	48 x 24
Entering Roadway Merge	W4-5	2C.40	36 x 36	36 x 36	48 x 48	—	—	—
No Merge Area (plaque)	W4-5P	2C.40	18 x 24	18 x 24	24 x 30	—	—	—
Entering Roadway Added Lane	W4-6	2C.41	36 x 36	36 x 36	48 x 48	—	—	—
Road Narrows	W5-1	2C.19	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Narrow Bridge	W5-2	2C.20	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
One Lane Bridge	W5-3	2C.21	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Divided Highway	W6-1	2C.22	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Divided Highway	W6-1aT	2C.22	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Divided Highway Ends	W6-2	2C.23	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Divided Highway Ends	W6-2aT	2C.23	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Two-Way Traffic	W6-3	2C.44	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Two Way Traffic on a Three Lane Road	W6-3aT	2C.44A	36 x 36	36 x 36	48 x 48	48 x 48	—	—
Hill	W7-1	2C.16	30 x 30*	36 x 36	36 x 36	36 x 36	24 x 24*	48 x 48
Hill with Grade	W7-1a	2C.16	30 x 30*	36 x 36	36 x 36	36 x 36	24 x 24*	48 x 48
Use Low Gear (plaque)	W7-2P	2C.57	24 x 18	24 x 18	—	—	—	—
Trucks Use Lower Gear (plaque)	W7-2bP	2C.57	24 x 18	24 x 18	—	—	—	—
XX% Grade (plaque)	W7-3P	2C.57	24 x 18	24 x 18	—	—	—	—
Next XX Miles (plaque)	W7-3aP	2C.55	24 x 18	24 x 18	—	—	—	—

* The minimum size required for diamond-shaped warning signs facing traffic on multi-lane conventional roads shall be 36 x 36 per Section 2C.04.
 ** The minimum size for diamond-shaped warning signs on state-maintained conventional roads should be 36" x 36". All other signs and plaques on state-maintained conventional roadways should use the multi-lane size as a standard.

Notes: 1. Larger signs may be used when appropriate.
 2. Dimensions in inches are shown as width x height.

Table 2C-2. Warning Sign and Plaque Sizes (Sheet 2 of 3)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
XX% Grade, XX Miles (plaque)	W7-3bP	2C.57	24 x 18	24 x 18	—	—	—	—
Runaway Truck Ramp XX Miles	W7-4	2C.17	78 x 48	78 x 48	78 x 48	78 x 48	—	—
Runaway Truck Ramp (with arrow)	W7-4b	2C.17	78 x 60	78 x 60	78 x 60	78 x 60	—	—
Truck Escape Ramp	W7-4c	2C.17	78 x 60	78 x 60	78 x 60	78 x 60	—	—
Sand, Gravel, Paved (plaques)	W7-4dP, 4eP,4fP	2C.17	24 x 12	24 x 12	24 x 12	24 x 12	—	—
Hill Blocks View	W7-6	2C.18	30 x 30*	36 x 36	36 x 36	—	—	48 x 48
Hill Blocks View (plaque)	W7-6TP	2C.07	24 x 18	24 x 18	24 x 18	—	—	—
Bump or Dip	W8-1,2	2C.28	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Pavement Ends	W8-3	2C.30	36 x 36	36 x 36	48 x 48	—	30 x 30*	—
Soft Shoulder	W8-4	2C.31	36 x 36	36 x 36	48 x 48	48 x 48	24 x 24*	48 x 48
Slow Down on Wet Road	W8-5aT	2C.32	30 x 30	36 x 36	36 x 36	48 x 48	—	48 x 48
Road Condition (plaques)	W8-5P,5bP,5cP	2C.32	24 x 18	24 x 18	30 x 24	36 x 30	—	36 x 30
Ice	W8-5aP	2C.32	24 x 12	24 x 12	30 x 18	30 x 18	—	—
Truck Crossing	W8-6	2C.49	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Loose Gravel	W8-7	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Loose Sand	W8-7aT	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24	48 x 48
Rough Road	W8-8	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Low Shoulder	W8-9	2C.31	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Shoulder Drop Off	W8-9aT	2C.31	30 x 30*	36 x 36	48 x 48	48 x 48	24 x 24	48 x 48
Uneven Lanes	W8-11	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	—	48 x 48
No Center Line	W8-12	2C.34	36 x 36	36 x 36	36 x 36	48 x 48	—	—
Watch for ICE on Bridge	W8-13T	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	—	48 x 48
Fallen Rocks	W8-14	2C.32	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Grooved Pavement	W8-15	2C.33	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Motorcycle (plaque)	W8-15P	2C.33	24 x 18	24 x 18	30 x 24	36 x 30	—	36 x 30
Metal Bridge Deck	W8-16	2C.33	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Shoulder Drop Off (symbol)	W8-17	2C.31	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Shoulder Drop-Off (plaque)	W8-17P	2C.31	24 x 18	24 x 18	30 x 24	36 x 30	—	36 x 30
Road May Flood	W8-18	2C.35	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Water Crossing	W8-18aT	2C.35	36 x 36	36 x 36	36 x 36	48 x 48	—	48 x 48
When Flooded Turn Around Don't Drown	W8-18bT	2C.35	48 x 48	48 x 48	48 x 48	48 x 48	—	48 x 48
Flood Gauge	W8-19	2C.35	12 x 72	12 x 72	—	—	—	—
Flood Gauge (Plaque)	W8-19aTP	2C.35	18x12	18x12	—	—	—	—
Gusty Winds Area	W8-21	2C.35	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Fog Area	W8-22	2C.35	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
No Shoulder	W8-23	2C.31	36 x 36	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Shoulder Ends	W8-25	2C.31	30 x 30*	36 x 36	36 x 36	48 x 48	24 x 24*	48 x 48
Left (Right) Lane Ends	W9-1	2C.42	36 x 36	36 x 36	36 x 36	48 x 48	30 x 30*	48 x 48
Lane Ends Merge Left (Right)	W9-2T	2C.42	36 x 36	36 x 36	36 x 36	48 x 48	30 x 30*	48 x 48
Bicycle	W11-1	2C.49	30 x 30	30 x 30	36 x 36	—	24 x 24*	48 x 48
Pedestrian	W11-2	2C.50	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Large Animals	W11-3,4,16,17,18,19,20,21,22	2C.50	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Farm Vehicle	W11-5,5a	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Snowmobile	W11-6	2C.50	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Equestrian	W11-7	2C.50	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Emergency Vehicle	W11-8	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Handicapped	W11-9	2C.50	30 x 30*	36 x 36	36 x 36	—	—	48 x 48
Truck	W11-10	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Golf Cart	W11-11	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Watch for Emergency Vehicles	W11-12T	2C.49	36 x 36	36 x 36	36 x 36	—	—	—

* The minimum size required for diamond-shaped warning signs facing traffic on multi-lane conventional roads shall be 36 x 36 per Section 2C.04.

** The minimum size for diamond-shaped warning signs on state-maintained conventional roads should be 36" x 36". All other signs and plaques on state-maintained conventional roadways should use the multi-lane size as a standard.

Notes: 1. Larger signs may be used when appropriate.

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

Table 2C-2. Warning Sign and Plaque Sizes (Sheet 3 of 3)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	** Multi-Lane				
Emergency Signal Ahead (plaque)	W11-12P	2C.49	36 x 30	36 x 30	36 x 30	—	—	—
Horse-Drawn Vehicle	W11-14	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Bicycle / Pedestrian	W11-15	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Trail Crossing	W11-15a	2C.49	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Trail X-ing (plaque)	W11-15P	2C.49	24 x 18	24 x 18	30 x 24	—	—	36 x 30
Double Arrow	W12-1	2C.25	30 x 30*	36 x 36	36 x 36	—	—	—
Low Clearance (with arrows)	W12-2	2C.27	36 x 36	36 x 36	48 x 48	48 x 48	30 x 30*	—
Low Clearance	W12-2a	2C.27	84 x 24	84 x 24	—	—	—	—
Low Clearance	W12-2TP	2C.27	24 x 18	24 x 18	24 x 18	24 x 18	—	—
Downward Arrow (plaque)	W12-3TP	2C.27	18 x 24	18 x 24	—	—	—	—
Low Clearance 10 Miles Ahead	W12-4T	2C.27	Var x 36	Var x 36	—	—	—	—
Loaded Zoned Bridge	W12-5T	2C.20A	36 x 36	36 x 36	36 x 36	—	—	—
Advisory Speed (plaque)	W13-1P	2C.08	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
Advisory Exit or Ramp Speed	W13-2,3	2C.14	24 x 30	24 x 30	36 x 48	48 x 60	—	48 x 60
On Ramp (plaque)	W13-4P	2C.15A	—	—	36 x 36	36 x 36	—	—
Ramp	W13-4aTP	2C.27	—	—	36 x 18	36 x 18	—	—
Combination Horizontal Alignment/Advisory Exit or Ramp Speed	W13-6,7	2C.15	24 x 42	24 x 42	36 x 60	36 x 60	—	48 x 84
Dead End, No Outlet, Road Ends	W14-1,2, 1T	2C.26	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Dead End, No Outlet (with arrow)	W14-1a,2a	2C.26	36 x 8	36 x 8	—	—	—	—
No Passing Zone (pennant)	W14-3	2C.45	48 x 48 x 36	48 x 48 x 36	—	—	40 x 40 x 30	64 x 64 x 48
Playground	W15-1	2C.51	30 x 30*	36 x 36	36 x 36	—	24 x 24*	48 x 48
Share the Road (plaque)	W16-1P	2C.60	18 x 24	18 x 24	24 x 30	—	—	24 x 30
XX Feet (plaque)	W16-2P	2C.55	24 x 18	24 x 18	—	—	—	30 x 24
XX Ft (plaque)	W16-2aP	2C.55	24 x 12	24 x 12	—	—	—	30 x 12
XX Miles (2-line plaque)	W16-3P	2C.55	30 x 24	30 x 24	—	—	—	—
XX Miles (1-line plaque)	W16-3aP	2C.55	30 x 12	30 x 12	—	—	—	—
Next XX Feet (plaque)	W16-4P	2C.55	30 x 24	30 x 24	—	—	—	—
Supplemental Arrow (plaque)	W16-5P,6P	2C.56	24 x 18	24 x 18	—	—	—	—
Downward Diagonal Arrow (plaque)	W16-7P	2C.50	24 x 12	24 x 12	—	—	—	30 x 18
Advance Street Name (1-line plaque)	W16-8P	2C.58	Varies x 8	Varies x 8	—	—	—	—
Advance Street Name (2-line plaque)	W16-8aP	2C.58	Varies x 15	Varies x 15	—	—	—	—
Ahead (plaque)	W16-9P	2C.50	24 x 12	24 x 12	30 x 18	—	—	—
Photo Enforced (plaque)	W16-10aP	2C.61	24 x 18	24 x 18	36 x 24	—	—	48 x 36
HOV (plaque)	W16-11P	2G.09	24 x 12	24 x 12	30 x 18	—	—	30 x 18
Traffic Circle (plaque)	W16-12P	2C.46	24 x 18	24 x 18	—	—	—	—
When Flashing (plaque)	W16-13P	2C.50	24 x 18	24 x 18	30 x 24	—	—	—
New (plaque)	W16-15P	2C.62	24 x 12	24 x 12	—	—	—	—
Roundabout (plaque)	W16-17P	2C.46	24 x 12	24 x 12	—	—	—	—
NOTICE	W16-18P	2A.15	24 x 12	24 x 12	—	—	—	—
Speed Hump	W17-1	2C.29	30 x 30*	36 x 36	—	—	24 x 24*	48 x 48
Freeway Ends XX Miles	W19-1	2C.24	—	—	—	144 x 48	—	—
Freeway Ends	W19-3	2C.24	—	—	—	48 x 48	—	—
All Traffic Must Exit	W19-5	2C.24	—	—	90 x 48	90 x 48	—	—
Rock Slides, Earth Slides	W17-11T, 12T	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	—	—
Watch for Smoke on Road	W17-14T	2C.35	36 x 36	36 x 36	36 x 36	48 x 48	—	—
Watch for Mud on Road	W17-15T	2C.32	36 x 36	36 x 36	36 x 36	48 x 48	—	—
New Traffic Pattern Ahead	W23-2	2C.52	36 x 36	36 x 36	—	—	—	—
Traffic Signal Extended Green	W25-1,2	2C.48	24 x 30	24 x 30	—	—	—	—

* The minimum size required for diamond-shaped warning signs facing traffic on multi-lane conventional roads shall be 36 x 36 per Section 2C.04.

** The minimum size for diamond-shaped warning signs on state-maintained conventional roads should be 36" x 36". All other signs and plaques on state-maintained conventional roadways should use the multi-lane size as a standard.

Notes: 1. Larger signs may be used when appropriate.

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

Support:

02 Section 2A.11 contains information regarding the applicability of the various columns in Table 2C-2.

Standard:

03 **Except as provided in Paragraph 5, the minimum size for all diamond-shaped warning signs facing traffic on a multi-lane conventional road where the posted speed limit is higher than 35 mph shall be 36 x 36 inches or as shown in Table 2C-2.**

04 **The minimum size for supplemental warning plaques that are not included in Table 2C-2 shall be as shown in Table 2C-3.**

Option:

05 If a diamond-shaped warning sign is placed on the left-hand side of a multi-lane roadway to supplement the installation of the same warning sign on the right-hand side of the roadway, the minimum size identified in the Single Lane column in Table 2C-2 may be used.

06 Signs and plaques larger than those shown in Tables 2C-2 and 2C-3 may be used (see Section 2A.11).

Guidance:

07 *The minimum size for all diamond-shaped warning signs facing traffic on exit and entrance ramps should be the size identified in Table 2C-2 for the mainline roadway classification (Expressway or Freeway). If a minimum size is not provided in the Freeway Column, the Expressway size should be used. If a minimum size is not provided in the Freeway or the Expressway Column, the Oversized size should be used.*

Size of Warning Sign	Size of Supplemental Plaque			
	Rectangular			Square
	1 Line	2 Lines	Arrow	
24 x 24	24 x 12	24 x 18	24 x 12	18 x 18
30 x 30				
36 x 36	30 x 18	30 x 24	30 x 18	24 x 24
48 x 48				

Section 2C.05 Placement of Warning Signs

Support:

01 For information on placement of warning signs, see Sections 2A.16 to 2A.21.

02 The time needed for detection, recognition, decision, and reaction is called the Perception-Response Time (PRT). Table 2C-4 is provided as an aid for determining warning sign location. The distances shown in Table 2C-4 can be adjusted for roadway features, other signing, and to improve visibility.

Guidance:

03 *Warning signs should be placed so that they provide an adequate PRT. The distances contained in Table 2C-4 are for guidance purposes and should be applied with engineering judgment. Warning signs should not be placed too far in advance of the condition, such that drivers might tend to forget the warning because of other driving distractions, especially in urban areas.*

04 *Minimum spacing between warning signs with different messages should be based on the estimated PRT for driver comprehension of and reaction to the second sign.*

05 *The effectiveness of the placement of warning signs should be periodically evaluated under both day and night conditions.*

Option:

06 Warning signs that advise road users about conditions that are not related to a specific location, such as Deer Crossing or SOFT SHOULDER, may be installed in an appropriate location, based on engineering judgment, since they are not covered in Table 2C-4.

Section 2C.06 Horizontal Alignment Warning Signs

Support:

01 A variety of horizontal alignment warning signs (see Figure 2C-1), pavement markings (see Chapter 3B), and delineation (see Chapter 3F) can be used to advise motorists of a change in the roadway alignment. Uniform application of these traffic control devices with respect to the amount of change in the roadway alignment conveys a consistent message establishing driver expectancy and promoting effective roadway operations. The design and application of horizontal alignment warning signs to meet those requirements are addressed in Sections 2C.06 through 2C.15.

Section 2C.27 Low Clearance Signs (W12-2 and W12-2a)

Standard:

- 01 **The Low Clearance (W12-2) sign (see Figure 2C-5) shall be used to warn road users of clearances less than 12 inches above the statutory maximum vehicle height.**

Guidance:

- 02 *The CLEARANCE (W12-2) sign and supplementary LOW CLEARANCE (W12-2TP) plaque (see Figure 2C-5), indicating low overhead clearance and showing the clearance at low bridges, underpasses and other overhead structures, except overhead sign structures, should be used only in advance of points when the advance CLEARANCE (W12-2) sign legend is 14 feet 5 inches or less on state roadways.*
- 03 *The CLEARANCE sign W12-2 without the W12-2TP plaque, should be used in advance of points on state roadways when the advance CLEARANCE (W12-2) sign legend is 14 feet 6 inches or greater except that vertical clearances greater than 20 feet 0 inches need not be signed. The clearance sign (W12-2) should be used on non-state roadways where the clearance is less than 14 feet 6 inches.*
- 04 *On expressways and freeways the sign should be erected far enough in advance of an exit ramp in advance of the structure to enable a vehicle or load higher than the signed clearance to detour around the structure if it is less than 20 feet 0 inches.*
- 05 *The () FT () IN clearance sign (W12-2a) should be used on or at every structure that spans a State maintained roadway, except overhead sign structures, to show the vertical clearance up to 20 feet 0 inches. Vertical clearances greater than 20 feet 0 inches are not required to be signed.*

Support:

- 06 *In some cases where two or more structures exist on a roadway between points of possible access (no entrance between structures), those structures which have a higher clearance than a preceding structure in the group for a given direction of travel, need not be signed for in that direction. On conventional roads, driveways are considered as points of possible access. This method is to be used only where it would not be possible for a high load to reach these structures without having passed under a preceding structure with a lower clearance. In such cases, only one advance clearance warning sign is necessary to show the clearance applicable to the lowest structure in the group.*
- 07 *In locations where an encroachment over the usable shoulder would drastically reduce the vertical clearance, as in the case of an arch or other structure under which the clearance varies greatly, two or more clearances may be shown; normally, one for the main travel lanes and one for the shoulder area. In cases where more than one clearance is shown on a surface and it may therefore be difficult for a driver to recognize where the clearances are measured, the W12-3TP (downward arrow) plaque should be used with the arrow pointing to the point of signed clearance. The downward arrow plaque should be immediately adjacent to the W12-2a sign or be located at either end or beneath the W12-2a sign. Normally, the lowest clearance posted should be the clearance posted on the advance clearance warning sign.*

Option:

- 08 *In cases where it is desired to warn motorists of a low clearance that will be encountered immediately downstream of a ramp, the clearance sign W12-2) may be used along with the W16-7P (diagonal arrow) or W13-4aTP (RAMP) plaque (see Figure 2C-5).*

Guidance:

- 09 *The LOW CLEARANCE () MILES AHEAD (W12-4T) sign should be used on conventional highways at such places that will enable a driver to detour to avoid the section of highway with a structure having vertical clearance less than 13 feet 6 inches. Where the clearance is less than the legal limit, a sign to that effect should be placed in advance of the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around. In determining the clearance to be shown on clearance signs, the measurement should be the minimum measured between the structure and the pavement surface rounded to the lower whole inch minus three (3) inches.*

Standard:

- 10 **Vertical clearance determination shall apply to the total lateral travel way under the structure which will normally include usable flush medians and shoulders.**

Guidance:

- 11 *However, where a rolled curb or elevated shoulder exists, clearances should not usually include the shoulder area.*
- 12 *Clearances should be evaluated periodically, particularly when resurfacing operations have occurred.*

Option:

- 13 The Low Clearance sign may be installed on or in advance of the structure. If a sign is placed on the structure, it may be a rectangular shape (W12-2a) with the appropriate legend (see Figure 2C-5).

Section 2C.28 BUMP and DIP Signs (W8-1, W8-2)*Guidance:*

- 01 *BUMP (W8-1) and DIP (W8-2) signs (see Figure 2C-6) should be used to give warning of a sharp rise or depression in the profile of the road.*

Option:

- 02 These signs may be supplemented with an Advisory Speed plaque (see Section 2C.08).

Standard:

- 03 **The DIP sign shall not be used at a short stretch of depressed alignment that might momentarily hide a vehicle.**

Guidance:

- 04 *A short stretch of depressed alignment that might momentarily hide a vehicle should be treated as a no-passing zone when center line striping is provided on a two-lane or three-lane road (see Section 3B.02).*

Section 2C.29 SPEED HUMP Sign (W17-1)*Guidance:*

- 01 *The SPEED HUMP (W17-1) sign (see Figure 2C-6) should be used to give warning of a vertical deflection in the roadway that is designed to limit the speed of traffic.*

- 02 *If used, the SPEED HUMP sign should be supplemented by an Advisory Speed plaque (see Section 2C.08).*

Option:

- 03 If a series of speed humps exists in close proximity, an Advisory Speed plaque may be eliminated on all but the first SPEED HUMP sign in the series.

- 04 The legend SPEED BUMP may be used instead of the legend SPEED HUMP on the W17-1 sign.

Support:

- 05 Speed humps generally provide more gradual vertical deflection than speed bumps. Speed bumps limit the speed of traffic more severely than speed humps. Other forms of speed humps include speed tables and raised intersections. However, these differences in engineering terminology are not well known by the public, so for signing purposes these terms are interchangeable.

Section 2C.30 PAVEMENT ENDS Sign (W8-3)*Guidance:*

- 01 *A PAVEMENT ENDS (W8-3) word message sign (see Figure 2C-6) should be used where a paved surface changes to either a gravel treated surface or an earth road surface.*

Option:

- 02 An Advisory Speed plaque (see Section 2C.08) may be used when the change in roadway condition requires a reduced speed.

Section 2C.31 Shoulder Signs (W8-4, W8-9, W8-9aT, W8-17, W8-23, and W8-25)**Option:**

- 01 The SOFT SHOULDER (W8-4) sign (see Figure 2C-6) may be used to warn of a soft shoulder condition.

- 02 The LOW SHOULDER (W8-9) sign (see Figure 2C-6) may be used to warn of a shoulder condition where there is an elevation difference of less than 3 inches between the shoulder and the travel lane.

Guidance:

- 03 *The Shoulder Drop Off (W8-9aT or W8-17) sign (see Figure 2C-6) should be used where an unprotected shoulder drop-off, adjacent to the travel lane, exceeds 3 inches in depth for a significant continuous length along the roadway, based on engineering judgment.*

Option:

- 04 A SHOULDER DROP-OFF (W8-17P) supplemental plaque (see Figure 2C-6) may be mounted below the W8-17 sign.

Figure 2C-6. Roadway and Weather Condition and Advance Traffic Control Signs and Plaques (1 of 2)

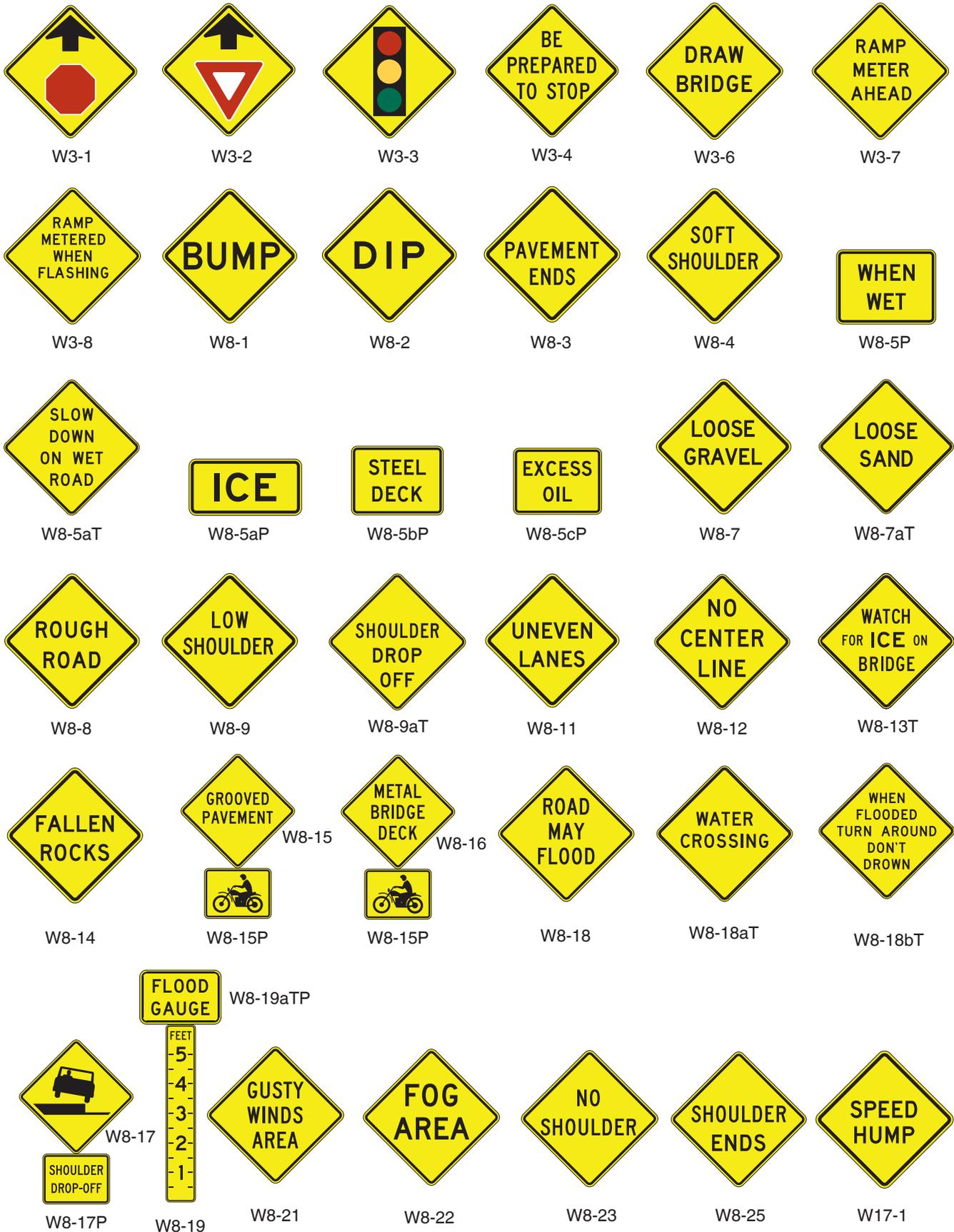


Figure 2C-6. Roadway and Weather Condition and Advance Traffic Control Signs and Plaques (2 of 2)



05 The NO SHOULDER (W8-23) sign (see Figure 2C-6) may be used to warn road users that a shoulder does not exist along a portion of the roadway.

06 The SHOULDER ENDS (W8-25) sign (see Figure 2C-6) may be used to warn road users that a shoulder is ending.

Standard:

07 **When used, shoulder signs shall be placed in advance of the condition (see Table 2C-4).**

Guidance:

08 *Additional shoulder signs should be placed at appropriate intervals along the road where the condition continually exists.*

Section 2C.32 Surface Condition Signs (W8-5aT, W8-7, W8-7aT, W8-8, W8-11, W8-13T, W8-14, W17-11T, W17-12T, and W17-15T)

Option:

01 The SLOW DOWN ON WET ROAD (W8-5aT) sign (see Figure 2C-6) may be used to warn of unexpected slippery conditions.

02 The LOOSE GRAVEL (W8-7) sign (see Figure 2C-6) may be used to warn of loose gravel on the roadway surface.

03 The LOOSE SAND (W8-7aT) sign (see Figure 2C-6) may be used to warn of a location where wind drifted sand may occasionally be encountered on the roadway or where blowing sand is a frequent hazard for drivers. It may also be used at locations where drivers parking off the shoulder of the highway, road, or street would probably encounter loose sand.

04 The WATCH FOR MUD ON ROAD (W17-15T) sign (see Figure 2C-6) may be used to warn of locations where mud may be on the roadway surface. The sign message may be modified to WATCH FOR DEBRIS ON ROAD.

05 The ROUGH ROAD (W8-8) sign (see Figure 2C-6) may be used to warn of a rough roadway surface.

06 An UNEVEN LANES (W8-11) sign (see Figure 2C-6) may be used to warn of a difference in elevation between travel lanes.

07 The WATCH FOR ICE ON BRIDGE (W8-13T) sign (see Figure 2C-6) may be used in advance of bridges to advise bridge users of winter weather conditions. The WATCH FOR ICE ON BRIDGE sign may be removed or covered during seasons of the year when its message is not relevant.

08 The FALLEN ROCKS (W8-14) sign (see Figure 2C-6) may be used in advance of an area that is adjacent to a hillside, mountain, or cliff where rocks frequently fall onto the roadway.

09 ROCK SLIDES (W17-11T) or EARTH SLIDES (W17-12T) signs (see Figure 2C-6), whichever is appropriate, may be used at a rock or earth cuts to warn that sliding rock or earth may be encountered.

Guidance:

10 *The ROCK SLIDES and EARTH SLIDES signs should be erected only after a study has been made to determine the need for its use.*

11 *When used, Surface Condition signs should be placed in advance of the beginning of the affected section (see Table 2C-4), and additional signs should be placed at appropriate intervals along the road where the condition exists.*

Section 2C.33 Warning Signs and Plaques for Motorcyclists (W8-15, W8-15P, and W8-16)

Support:

- 01 The signs and plaques described in this Section are intended to give motorcyclists advance notice of surface conditions that might adversely affect their ability to maintain control of their motorcycle under wet or dry conditions. The use of some of the advance surface condition warning signs described in Section 2C.32, such as **SLOW DOWN ON WET ROAD**, **LOOSE GRAVEL**, or **ROUGH ROAD**, can also be helpful to motorcyclists if those conditions exist.

Option:

- 02 If a portion of a street or highway features a roadway pavement surface that is grooved or textured instead of smooth, such as a grooved skid resistance treatment for a horizontal curve or a brick pavement surface, a **GROOVED PAVEMENT (W8-15)** sign (see Figure 2C-6) may be used to provide advance warning of this condition to motorcyclists, bicyclists, and other road users. Alternate legends such as **TEXTURED PAVEMENT** or **BRICK PAVEMENT** may also be used on the W8-15 sign.
- 03 If a bridge or a portion of a bridge includes a metal or grated surface, a **METAL BRIDGE DECK (W8-16)** sign (see Figure 2C-6) may be used to provide advance warning of this condition to motorcyclists, bicyclists, and other road users.
- 04 A **Motorcycle (W8-15P)** plaque (see Figure 2C-6) may be mounted below or above a W8-15 or W8-16 sign if the warning is intended to be directed primarily to motorcyclists.

Section 2C.34 NO CENTER LINE Sign (W8-12)

Option:

- 01 The **NO CENTER LINE (W8-12)** sign (see Figure 2C-6) may be used to warn of a roadway without center line pavement markings.

Section 2C.35 Weather Condition Signs (W8-18, W8-18aT, W8-18bT, W8-19, W8-19aTP, W8-21, W8-22, and W17-14T)

Option:

- 01 The **ROAD MAY FLOOD (W8-18)** sign (see Figure 2C-6) may be used to warn road users that a section of roadway is subject to frequent flooding. The **WATER CROSSING (W8-18aT)** sign may be used to warn of a dip or ford where the roadway is normally underwater. The **WHEN FLOODED TURN AROUND DON'T DROWN (W8-18bT)** sign may be used in addition to the W8-18 or W8-18aT sign. A **Depth Gauge (W8-19)** sign and **(W8-19aTP)** plaque (see Figure 2C-6) may also be installed within a roadway section that frequently floods.

Guidance:

- 02 *The **WATER CROSSING (W8-18aT)** sign should not be used where water only occasionally and temporarily crosses the roadway due to heavy local rains or flash floods.*

Standard:

- 03 **If used, the Depth Gauge sign shall be in addition to the ROAD MAY FLOOD, WATER CROSSING, or WHEN FLOODED TURN AROUND DON'T DROWN sign and shall indicate the depth of the water at the deepest point on the roadway.**

Option:

- 04 The **GUSTY WINDS AREA (W8-21)** sign (see Figure 2C-6) may be used to warn road users that wind gusts frequently occur along a section of highway that are strong enough to impact the stability of trucks, recreational vehicles, and other vehicles with high centers of gravity. A **NEXT XX MILES (W7-3aP)** supplemental plaque may be mounted below the W8-21 sign to inform road users of the length of roadway that frequently experiences strong wind gusts.
- 05 The **FOG AREA (W8-22)** sign (see Figure 2C-6) may be used to warn road users that foggy conditions frequently reduce visibility along a section of highway. A **NEXT XX MILES (W7-3aP)** supplemental plaque may be mounted below the W8-22 sign to inform road users of the length of roadway that frequently experiences foggy conditions.
- 06 The **WATCH FOR SMOKE ON ROAD (W17-14T)** sign (see Figure 2C-6) may be used to warn of locations where the driver's vision may be temporarily obscured due to smoke or other gases from nearby industry.

Section 2C.36 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)**Standard:**

- 01 The Advance Traffic Control symbol signs (see Figure 2C-6) include the Stop Ahead (W3-1), Yield Ahead (W3-2), and Signal Ahead (W3-3) signs. These signs shall be installed on an approach to a primary traffic control device that is not visible for a sufficient distance to permit the road user to respond to the device (see Table 2C-4). The visibility criteria for a traffic control signal shall be based on having a continuous view of at least two signal faces for the distance specified in Table 4D-2.

Support:

- 02 Figure 2A-4 shows the typical placement of an Advance Traffic Control sign.
- 03 Permanent obstructions causing the limited visibility might include roadway alignment or structures. Intermittent obstructions might include foliage or parked vehicles.

Option:

- 04 The PHOTO ENFORCED (W16-10aP) plaque (see Section 2C.61) may be mounted below the W3-3 Signal Ahead sign on an approach to a signalized location where red-light cameras are present on any approach to the signalized location.

Guidance:

- 05 *Where intermittent obstructions occur, engineering judgment should determine the treatment to be implemented.*

Option:

- 06 An Advance Traffic Control sign may be used for additional emphasis of the primary traffic control device, even when the visibility distance to the device is satisfactory.
- 07 An advance street name plaque (see Section 2C.58) may be installed above or below an Advance Traffic Control sign.
- 08 A warning beacon may be used with an Advance Traffic Control sign.
- 09 A BE PREPARED TO STOP (W3-4) sign (see Figure 2C-6) may be used to warn of stopped traffic caused by a traffic control signal or in advance of a section of roadway that regularly experiences traffic congestion.

Standard:

- 10 **When a BE PREPARED TO STOP sign is used in advance of a traffic control signal, it shall be used in addition to a Signal Ahead sign and shall be placed downstream from the Signal Ahead (W3-3) sign.**

Option:

- 11 The BE PREPARED TO STOP sign may be supplemented with a warning beacon (see Section 4L.03).

Guidance:

- 12 *When the warning beacon is interconnected with a traffic control signal or queue detection system, the BE PREPARED TO STOP sign should be supplemented with a WHEN FLASHING (W16-13P) plaque (see Figure 2C-12).*

Support:

- 13 Section 2C.40 contains information regarding the use of a NO MERGE AREA (W4-5P) supplemental plaque in conjunction with a Yield Ahead sign.

Section 2C.37 Advance Ramp Control Signal Signs (W3-7 and W3-8)**Option:**

- 01 A RAMP METER AHEAD (W3-7) sign (see Figure 2C-6) may be used to warn road users that a freeway entrance ramp is metered and that they will encounter a ramp control signal (see Chapter 4I).

Guidance:

- 02 *When the ramp control signals are operated only during certain periods of the day, a RAMP METERED WHEN FLASHING (W3-8) sign (see Figure 2C-6) should be installed in advance of the ramp control signal near the entrance to the ramp, or on the arterial on the approach to the ramp, to alert road users to the presence and operation of ramp meters.*

Standard:

- 03 **The RAMP METERED WHEN FLASHING sign shall be supplemented with a warning beacon (see Section 4L.03) that flashes when the ramp control signal is in operation.**

Section 2C.38 Reduced Speed Limit Ahead Sign (W3-5)*Guidance:*

- 01 A Reduced Speed Limit Ahead (W3-5) sign (see Figure 2C-7) should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph, or where engineering judgment indicates the need for advance notice to comply with the posted speed limit ahead.

Standard:

- 02 If used, Reduced Speed Limit Ahead signs shall be followed by a Speed Limit (R2-1) sign installed at the beginning of the zone where the speed limit applies.
- 03 The speed limit displayed on the Reduced Speed Limit Ahead sign shall be identical to the speed limit displayed on the subsequent Speed Limit sign.

Section 2C.39 DRAW BRIDGE Sign (W3-6)**Standard:**

- 01 A DRAW BRIDGE (W3-6) sign (see Figure 2C-6) shall be used in advance of movable bridge signals and gates (see Section 4J.02) to give warning to road users, except in urban conditions where such signing would not be practical.

Section 2C.40 Merge Signs (W4-1, W4-5, W4-1aT)*Option:*

- 01 A Merge (W4-1) sign (see Figure 2C-8) may be used to warn road users on the major roadway that merging movements might be encountered in advance of a point where lanes from two separate roadways converge as a single traffic lane and no turning conflict occurs.
- 02 A Merge sign may also be installed on the side of the entering roadway to warn road users on the entering roadway of the merge condition.
- 03 The THRU TRAFFIC MERGE LEFT (RIGHT) W4-1aT sign (see Figure 2C-8) may be used on a divided highway, road, or street where one or more of the approach lane(s) do not continue straight through the interchange or intersection.

Guidance:

- 04 The Merge sign should be installed on the side of the major roadway where merging traffic will be encountered and in such a position as to not obstruct the road user's view of entering traffic.
- 05 Where two roadways of approximately equal importance converge, a Merge sign should be placed on each roadway.
- 06 When a Merge sign is to be installed on an entering roadway that curves before merging with the major roadway, such as a ramp with a curving horizontal alignment as it approaches the major roadway, the Entering Roadway Merge (W4-5) sign (see Figure 2C-8) should be used to better portray the actual geometric conditions to road users on the entering roadway.
- 07 The Merge sign should not be used where two roadways converge and merging movements are not required.
- 08 The Merge sign should not be used in place of a Lane Ends sign (see Section 2C.42) where lanes of traffic moving on a single roadway must merge because of a reduction in the actual or usable pavement width.

Standard:

- 09 The THRU TRAFFIC MERGE RIGHT (W4-1aT) sign shall not be used in advance of the end of an acceleration or deceleration lane.

Guidance:

- 10 The THRU TRAFFIC MERGE RIGHT (W4-1aT) sign should normally be erected about 250 feet in advance of the lane divergence in urban districts and about 750 feet in advance of the lane divergence in rural districts, subject to adjustment to local conditions.

Option:

- 11 The THRU TRAFFIC MERGE RIGHT (W4-1aT) sign may be duplicated on both sides of the road for additional emphasis. On high speed highways, roads, or streets the advance warning distance may be as great as 1500 feet.

Figure 2C-7. Reduced Speed Limit Ahead Sign

W3-5

Option:

- 12 An Entering Roadway Merge (W4-5) sign with a NO MERGE AREA (W4-5P) supplemental plaque (see Figure 2C-8) mounted below it may be used to warn road users on an entering roadway that they will encounter an abrupt merging situation without an acceleration lane at the downstream end of the ramp.
- 13 A Merge (W4-1) sign with a NO MERGE AREA (W4-5P) supplemental plaque mounted below it may be used to warn road users on the major roadway that traffic on an entering roadway will encounter an abrupt merging situation without an acceleration lane at the downstream end of the ramp.
- 14 For a yield-controlled channelized right-turn movement onto a roadway without an acceleration lane, a NO MERGE AREA (W4-5P) supplemental plaque may be mounted below a Yield Ahead (W3-2) sign and/or below a YIELD (R1-2) sign when engineering judgment indicates that road users would expect an acceleration lane to be present.

Section 2C.41 Added Lane Signs (W4-3, W4-6)

Guidance:

- 01 The Added Lane (W4-3) sign (see Figure 2C-8) should be installed in advance of a point where two roadways converge and merging movements are not required. When possible, the Added Lane sign should be placed such that it is visible from both roadways; if this is not possible, an Added Lane sign should be placed on the side of each roadway.
- 02 When an Added Lane sign is to be installed on a roadway that curves before converging with another roadway that has a tangent alignment at the point of convergence, the Entering Roadway Added Lane (W4-6) sign (see Figure 2C-8) should be used to better portray the actual geometric conditions to road users on the curving roadway.

Section 2C.42 Lane Ends Signs (W4-2, W9-1, W9-2T)

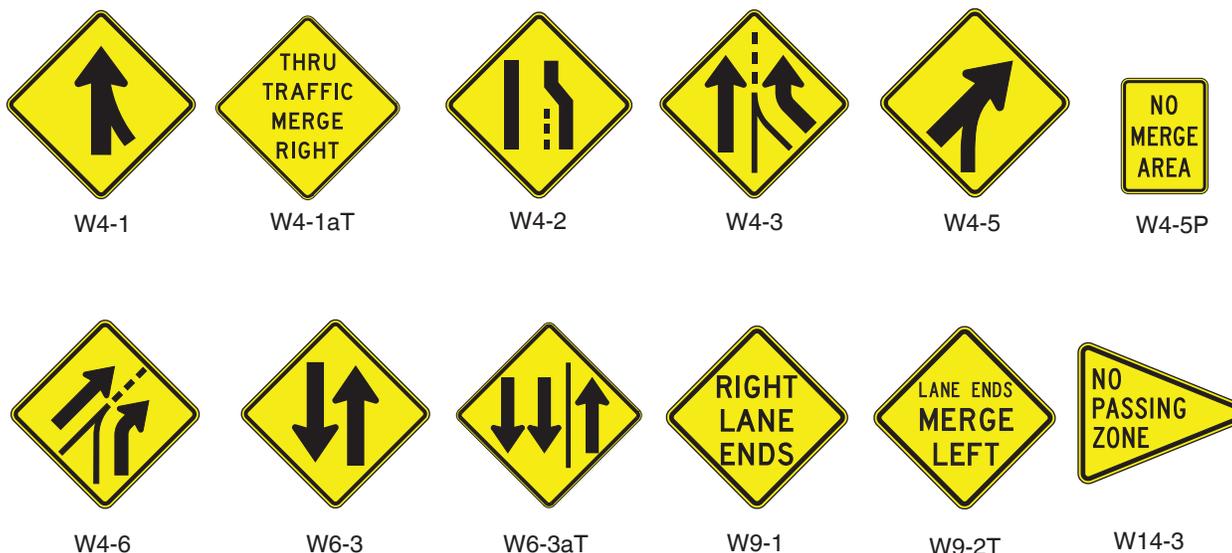
Guidance:

- 01 The LANE ENDS MERGE LEFT (RIGHT) (W9-2T) sign or the Lane Ends (W4-2) sign should be used to warn of the reduction in the number of traffic lanes in the direction of travel on a multi-lane highway (see Figure 2C-8).

Option:

- 02 The RIGHT (LEFT) LANE ENDS (W9-1) sign (see Figure 2C-8) may be used in advance of the Lane Ends (W4-2) sign or the LANE ENDS MERGE LEFT (RIGHT) (W9-2T) sign as additional warning or to emphasize that the traffic lane is ending and that a merging maneuver will be required.

Figure 2C-8. Merging and Passing Signs and Plaques



Guidance:

- 03 The **LANE ENDS MERGE LEFT (RIGHT) (W9-2T)** sign should be installed in accordance with Table 2C-4 (see Figure 3B-14).

Option:

- 04 On one-way streets or on divided highways where the width of the median will permit, two Lane Ends signs may be placed facing approaching traffic, one on the right-hand side and the other on the left-hand side or median.

Support:

- 05 Section 3B.09 contains information regarding the use of pavement markings in conjunction with a lane reduction.

Guidance:

- 06 Where an extra lane has been provided for slower moving traffic (see Section 2B.31), a **LANE ENDS MERGE LEFT (RIGHT) (W9-2T)** sign or a **LANE ENDS (W4-2)** symbol sign should be installed in advance of the downstream end of the extra lane.

- 07 Lane Ends signs should not be installed in advance of the downstream end of an acceleration lane.

Standard:

- 08 In dropped lane situations, regulatory signs (see Section 2B.20) shall be used to inform road users that a through lane is becoming a mandatory turn lane. The W4-2, W9-1, and W9-2T signs shall not be used in dropped lane situations.

Section 2C.43 ~~RIGHT (LEFT) LANE EXIT ONLY AHEAD Sign (W9-7)~~ DELETED**Section 2C.44 Two-Way Traffic Sign (W6-3)***Guidance:*

- 01 A Two-Way Traffic (W6-3) sign (see Figure 2C-8) should be used to warn road users of a transition from a multi-lane divided section of roadway to a two-lane, two-way section of roadway.

- 02 A Two-Way Traffic (W6-3) sign with an AHEAD (W16-9P) plaque (see Figure 2C-12) should be used to warn road users of a transition from a one-way street to a two-lane, two-way section of roadway (see Figure 2B-14).

Option:

- 03 The Two-Way Traffic sign may be used at intervals along a two-lane, two-way roadway and may be used to supplement the Divided Highway (Road) Ends (W6-2) sign discussed in Section 2C.23.

Section 2C.44A Two-Way Traffic on a Three Lane Roadway Sign (W6-3aT)*Option:*

- 01 A Two-Way Traffic on a Three Lane Roadway (W6-3aT) sign (see Figure 2C-8) may be installed on a three lane roadway with two lanes in one direction and one in the opposing direction.

Standard:

- 02 The W6-3aT sign shall match the lane configuration of the roadway.

Section 2C.45 NO PASSING ZONE Sign (W14-3)**Standard:**

- 01 The **NO PASSING ZONE (W14-3)** sign (see Figure 2C-8) shall be a pennant-shaped isosceles triangle with its longer axis horizontal and pointing to the right. When used, the **NO PASSING ZONE** sign shall be installed on the left side of the roadway at the beginning of no-passing zones identified by pavement markings or **DO NOT PASS** signs or both (see Sections 2B.28 and 3B.02).

Section 2C.46 Intersection Warning Signs (W2-1 through W2-8)*Option:*

- 01 A Cross Road (W2-1) symbol, Side Road (W2-2 or W2-3) symbol, T-Symbol (W2-4), or Y-Symbol (W2-5) sign (see Figure 2C-9) may be used in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic.

- 02 The Circular Intersection (W2-6) symbol sign (see Figure 2C-9) may be installed in advance of a circular intersection (see Figures 2B-21 through 2B-23).

Guidance:

03 *If an approach to a roundabout has a statutory or posted speed limit of 40 mph or higher, the Circular Intersection (W2-6) symbol sign should be installed in advance of the circular intersection.*

Option:

04 An educational plaque (see Figure 2C-9) with a legend such as ROUNDABOUT (W16-17P) or TRAFFIC CIRCLE (W16-12P) may be mounted below a Circular Intersection symbol sign.

05 The relative importance of the intersecting roadways may be shown by different widths of lines in the symbol.

06 An advance street name plaque (see Section 2C.58) may be installed above or below an Intersection Warning sign.

Guidance:

07 *The Intersection Warning sign should illustrate and depict the general configuration of the intersecting roadway, such as cross road, side road, T-intersection, or Y-intersection.*

08 *Intersection Warning signs, other than the Circular Intersection (W2-6) symbol sign and the T-intersection (W2-4) symbol sign should not be used on approaches controlled by STOP signs, YIELD signs, or signals.*

09 *If an Intersection Warning sign is used where the side roads are not opposite of each other, the Offset Side Roads (W2-7) symbol sign (see Figure 2C-9) should be used instead of the Cross Road symbol sign.*

10 *If an Intersection Warning sign is used where two closely-spaced side roads are on the same side of the highway, the Double Side Roads (W2-8) symbol sign (see Figure 2C-9) should be used instead of the Side Road symbol sign.*

11 *No more than two side road symbols should be displayed on the same side of the highway on a W2-7 or W2-8 symbol sign, and no more than three side road symbols should be displayed on a W2-7 or W2-8 symbol sign.*

Support:

12 Figure 2A-4 shows the typical placement of an Intersection Warning sign.

Section 2C.46A Highway Intersection Ahead Sign (W2-1aT)*Option:*

01 The HIGHWAY INTERSECTION AHEAD (W2-1aT) sign (see Figure 2C-9) may be used on the approaches to an intersection of important highways, roads, or streets.

Guidance:

02 *The use of this sign should be limited to locations involving high approach speeds, restricted sight distances or a high number of crashes indicating a need for the sign.*

Section 2C.46B TRAFFIC ISLANDS AHEAD Sign (W2-6aT)*Option:*

01 The TRAFFIC ISLANDS AHEAD (W2-6aT) sign may be used to warn of a channelized intersection in the highway, road, or street ahead.

Section 2C.47 Two-Direction Large Arrow Sign (W1-7, W1-7T)**Standard:**

01 **The Two-Direction Large Arrow (W1-7, W1-7T) signs (see Figure 2C-9) shall be a horizontal rectangle.**

02 **If used, it shall be installed on the far side of a T-intersection in line with, and at approximately a right angle to, traffic approaching from the stem of the T-intersection.**

03 **The Two-Direction Large Arrow sign shall not be used where there is no change in the direction of travel such as at the beginnings and ends of medians or at center piers.**

04 **The Two-Direction Large Arrow sign directing traffic to the left and right shall not be used in the central island of a roundabout.**

Guidance:

05 *The Two-Direction Large Arrow sign should be visible for a sufficient distance to provide the road user with adequate time to react to the intersection configuration.*

small islands, and abrupt changes in the roadway alignment, that might make it undesirable for a road user to leave the roadway, and therefore would create a need for a marker.

Standard:

- 02 **If a Type 2 or Type 3 object marker is used to mark an obstruction adjacent to the roadway, the edge of the object marker that is closest to the road user shall be installed in line with the closest edge of the obstruction.**
- 03 **Where Type 3 object markers are applied to the approach ends of guardrail and other roadside appurtenances, sheeting without a substrate shall be directly affixed to the approach end of the guardrail in a rectangular shape conforming to the size of the approach end of the guardrail with alternating black and retroreflective yellow stripes sloping downward at an angle of 45 degrees toward the side of the obstruction on which traffic is to pass.**
- 04 **Type 1 and Type 4 object markers shall not be used to mark obstructions adjacent to the roadway.**
Guidance:
- 05 *Standard warning signs in this Chapter should also be used where applicable.*

Section 2C.66 Object Markers for Ends of Roadways

Support:

- 01 The Type 4 object marker is used to warn and alert road users of the end of a roadway in other than construction or maintenance areas.

Standard:

- 02 **If an object marker is used to mark the end of a roadway, a Type 4 object marker shall be used.**

Option:

- 03 The Type 4 object marker may be used in instances where there are no alternate vehicular paths.
- 04 Where conditions warrant, more than one marker, or a larger marker with or without a Type 3 Barricade (see Section 2B.67), may be used at the end of the roadway.

Standard:

- 05 **The minimum mounting height, measured vertically from the bottom of a Type 4 object marker to the elevation of the near edge of the traveled way, shall be 4 feet.**

Guidance:

- 06 *Appropriate advance warning signs in this Chapter should be used.*

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Table 2D-1. Conventional Road Guide Sign Sizes

Sign	Sign Designation	Section	Conventional Road	Minimum	Oversized
Interstate Route Sign (1 or 2 digits)	M1-1	2D.11	24 x 24	24 x 24	36 x 36
Interstate Route Sign (3 digits)	M1-1	2D.11	30 x 24	30 x 24	45 x 36
Off-Interstate Route Sign (1 or 2 digits)	M1-2,3	2D.11	24 x 24	24 x 24	36 x 36
Off-Interstate Route Sign (3 digits)	M1-2,3	2D.11	30 x 24	30 x 24	45 x 36
U.S. Route Sign (1 or 2 digits)	M1-4	2D.11	24 x 24	24 x 24	36 x 36
U.S. Route Sign (3 digits)	M1-4	2D.11	30 x 24	30 x 24	45 x 36
State Route Sign	M1-6T	2D.11	24 x 24	24 x 24	36 x 36
Texas Farm Road	M1-6F, M1-6R	2D.11	24 x 24	24 x 24	36 x 36
County Route Sign (1, 2, or 3 digits)	M1-5	2D.11	24 x 24	24 x 24	36 x 36
County Road (number)	D20-1T,2T,3T,4T	2D.11	24 x 24	24 x 24	—
County Road (name)	D21-1T, 2T	2D.11	Varies x 12	Varies x 12	—
County Road (long name)	D21-3T	2D.11	Varies x 36	Varies x 36	—
Forest Route (1, 2, or 3 digits)	M1-7	2D.11	24 x 24	18 x 18	36 x 36
Junction	M2-1	2D.13	21 x 15	21 x 15	30 x 24
Combination Junction (2 route signs)	M2-2	2D.14	60 x 48*	—	—
Cardinal Direction	M3-1,2,3,4	2D.15	24 x 12	24 x 12	36 x 18
Alternate	M4-1,1a	2D.17	24 x 12	24 x 12	36 x 18
By-Pass	M4-2	2D.18	24 x 12	24 x 12	36 x 18
Business	M4-3	2D.19	24 x 12	24 x 12	36 x 18
Truck	M4-4	2D.20	24 x 12	24 x 12	36 x 18
To	M4-5	2D.21	24 x 12	24 x 12	36 x 18
End	M4-6	2D.22	24 x 12	24 x 12	36 x 18
Temporary	M4-7,7a	2D.24	24 x 12	24 x 12	36 x 18
Future	M4-7bT	2D.12	24 x 12	24 x 12	—
Begin	M4-14	2D.23	24 x 12	24 x 12	36 x 18
Advance Turn Arrow	M5-1,2,3,3T	2D.26	21 x 15	21 x 15	—
Lane Designation	M5-4,5,6	2D.27	24 x 18	24 x 18	36 x 24
Directional Arrow	M6-1,2,2a,3,4,5,6,7	2D.28	21 x 15	21 x 15	30 x 24
Destination (1 line)	D1-1	2D.37	Varies x 18	Varies x 18	—
Circular Intersection Destination (1 line)	D1-1d	2D.38	Varies x 18	Varies x 18	—
Circular Intersection Departure Guide	D1-1e	2D.38	Varies x 42*	—	—
Destination (2 lines)	D1-2	2D.37	Varies x 30	Varies x 30	—
Circular Intersection Destination (2 lines)	D1-2d	2D.38	Varies x 30	Varies x 30	—
Destination (3 lines)	D1-3	2D.37	Varies x 42	Varies x 42	—
Circular Intersection Destination (3 lines)	D1-3d	2D.38	Varies x 42	Varies x 42	—
Distance (1 line)	D2-1	2D.41	Varies x 18	Varies x 18	—
Distance (2 lines)	D2-2	2D.41	Varies x 30	Varies x 30	—
Distance (3 lines)	D2-3	2D.41	Varies x 42	Varies x 42	—
Street Name (1 line)	D3-1,1a	2D.43	Varies x 12	Varies x 8	Varies x 18
Overhead Street Name	D3-1	2D.43	Var x 18	Var x 12	—
Advance Street Name (2 lines)	D3-2	2D.44	Varies x 30	—	—
Advance Street Name (3 lines)	D3-2	2D.44	Varies x 42	—	—
Advance Street Name (4 lines)	D3-2	2D.44	Varies x 54	—	—
Parking Area	D4-1	2D.47	30 x 24	18 x 15	—
Park - Ride	D4-2	2D.48	30 x 36	24 x 30	36 x 48
Weigh Station XX Miles	D8-1	2D.49	78 x 60	60 x 48	96 x 72
CMV Inspection Station 1 Mile	D8-1T	2D.49A	60 x 48	78 x 60	96 x 72
CMV Inspection Station 1/2 Mile	D8-1aT	2D.49A	60 x 48	78 x 60	96 x 72
CMV Inspection Station (with arrow)	D8-1bT	2D.49A	48 x 42	66 x 60	84 x 78
Weigh Station Next Right	D8-2	2D.49	84 x 48	66 x 36	108 x 60
Weigh Station (with arrow)	D8-3	2D.49	66 x 60	48 x 42	84 x 78
Crossover	D13-1,2	2D.54	60 x 30	60 x 30	72 x 36
Freeway Entrance	D13-3	2D.46	48 x 30	48 x 30	—
Freeway Entrance (with arrow)	D13-3a	2D.46	48 x 42	48 x 42	—
Combination Lane Use / Destination	D15-1	2D.33	Varies x 96	Varies x 96	—
Passing Lane XX Miles	D15-10T	2D.51	54 x 42	54 x 42	—
Next Passing Lane XX Miles	D15-11T	2D.51	54 x 48	54 x 48	—
Slow Vehicle Turn-Out XX Miles	D17-7	2D.52	72 x 42	72 x 42	96 x 54

*The size shown is for a typical sign. The size should be appropriately based on the amount of legend required for the sign.

Notes: 1. Larger signs may be used when appropriate

2. Dimensions in inches are shown as width x height

reading. Where conditions permit, repetition of guide information on successive signs gives the road user more than one opportunity to obtain the information needed.

Standard:

02 **Design layouts for conventional road guide signs showing interline spacing, edge spacing, and other specification details shall be as shown in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).**

03 **The principal legend on guide signs shall be in letters and numerals at least 6 inches in height for all upper-case letters, or a combination of 6 inches in height for upper-case letters and 4.5 inches in height for lower-case letters. On low-volume roads (as defined in Section 5A.01) with speeds of 25 mph or less, and on urban streets with speeds of 25 mph or less, the principal legend shall be in letters at least 4 inches in height for all upper-case letters, or a combination of 4 inches in height for upper-case letters and 3 inches in height for lower-case letters.**

Guidance:

04 *Lettering sizes should be consistent on any particular class of highway.*

05 *The minimum lettering sizes provided in this Manual should be exceeded where conditions indicate a need for greater legibility.*

Section 2D.07 Amount of Legend

Support:

01 The longer the legend on a guide sign, the longer it will take road users to comprehend it, regardless of letter size.

Guidance:

02 *Except where otherwise provided in this Manual, guide signs should be limited to no more than three lines of destinations, which include place names, route numbers, street names, and cardinal directions. Where two or more signs are included in the same overhead display, the amount of legend should be further minimized. Where appropriate, a distance message or action information, such as an exit number, NEXT RIGHT, or directional arrows, should be provided on guide signs in addition to the destinations.*

Section 2D.08 Arrows

Support:

01 Arrows are used for lane assignment and to indicate the direction toward designated routes or destinations. Figure 2D-2 shows the various standard arrow designs that have been approved for use on guide signs. Detailed drawings and standardized sizes based on ranges of letter heights are shown for these arrows in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).

Standard:

02 **On overhead signs where it is desirable to indicate a lane to be followed, a down arrow shall be positioned approximately over the center of the lane and shall point vertically downward toward the approximate center of that lane. Down arrows shall be used only on overhead guide signs that restrict the use of specific lanes to traffic bound for the destination(s) and/or route(s) indicated by these arrows. Down arrows shall not be used unless an arrow can be located over and pointed to the approximate center of each lane that can be used to reach the destination displayed on the sign.**

03 **If down arrows are used, having more than one down arrow pointing to the same lane on a single overhead sign (or on multiple signs on the same overhead sign structure) shall not be permitted.**

04 **Where a roadway is leaving the through lanes, a directional arrow shall point upward at an angle that approximates the alignment of the exit roadway.**

Option:

05 Curved-stem arrows (see Figure 2D-8) that represent the intended driver paths to destinations involving left-turn movements may be used on guide signs on approaches to circular intersections.

Standard:

06 **Curved-stem arrows shall not be used on any sign that is not associated with a circular intersection.**

Guidance:

07 *If curved-stem arrows are used, the principles set forth in Sections 2D.26 through 2D.29 should be followed.*

08 *The Type A directional arrow should be used on guide signs on freeways, expressways, and conventional roads to indicate the direction to a specific destination or group of destinations, except as otherwise provided in this Section and in Section 2E.19.*

Standard:

- 04 **The M6-2a sign shall not be used on the approach to or on the near side of an intersection, such as to designate an approach lane.**

Section 2D.29 Route Sign Assemblies**Standard:**

- 01 **A Route Sign assembly shall consist of a route sign and auxiliary signs that further identify the route and indicate the direction. Route Sign assemblies shall be installed on all approaches to numbered routes that intersect with other numbered routes.**
- 02 **Where two or more routes follow the same section of highway, the route signs for Interstate, U.S., State, and county routes shall be mounted in that order from the left in horizontal arrangements and from the top in vertical arrangements. Subject to this order of precedence, route signs for lower-numbered routes shall be placed at the left or top.**
- 03 **Within groups of assemblies, information for routes intersecting from the left shall be mounted at the left in horizontal arrangements and at the top or center of vertical arrangements. Similarly, information for routes intersecting from the right shall be at the right or bottom, and for straight-through routes at the center in horizontal arrangements or top in vertical arrangements.**
- 04 **Route Sign assemblies shall be mounted in accordance with the general specifications for signs (Chapter 2A), with the lowest sign in the assembly at the height prescribed for single signs.**

Guidance:

- 05 *Assemblies for two or more routes, or for different directions on the same route, should be mounted in groups on a common support.*

Option:

- 06 Route Sign assemblies may be installed on the approaches to numbered routes on unnumbered roads and streets that carry an appreciable amount of traffic destined for the numbered route.
- 07 The diagrammatic route guide sign format, such as the D1-5 and D1-5a signs shown in Figure 2D-8, may be used on approaches to roundabouts.
- 08 If engineering judgment indicates that groups of assemblies that include overlapping routes or multiple turns might be confusing, route signs or auxiliary signs may be omitted or combined, provided that clear directions are given to road users.

Support:

- 09 Figure 2D-6 shows typical placements of route signs.

Section 2D.30 Junction Assembly**Standard:**

- 01 **A Junction assembly shall consist of a Junction auxiliary sign and a route sign. The route sign shall carry the number of the intersected or joined route.**
- 02 **The Junction assembly shall be installed in advance of every intersection where a numbered route is intersected or joined by another numbered route.**

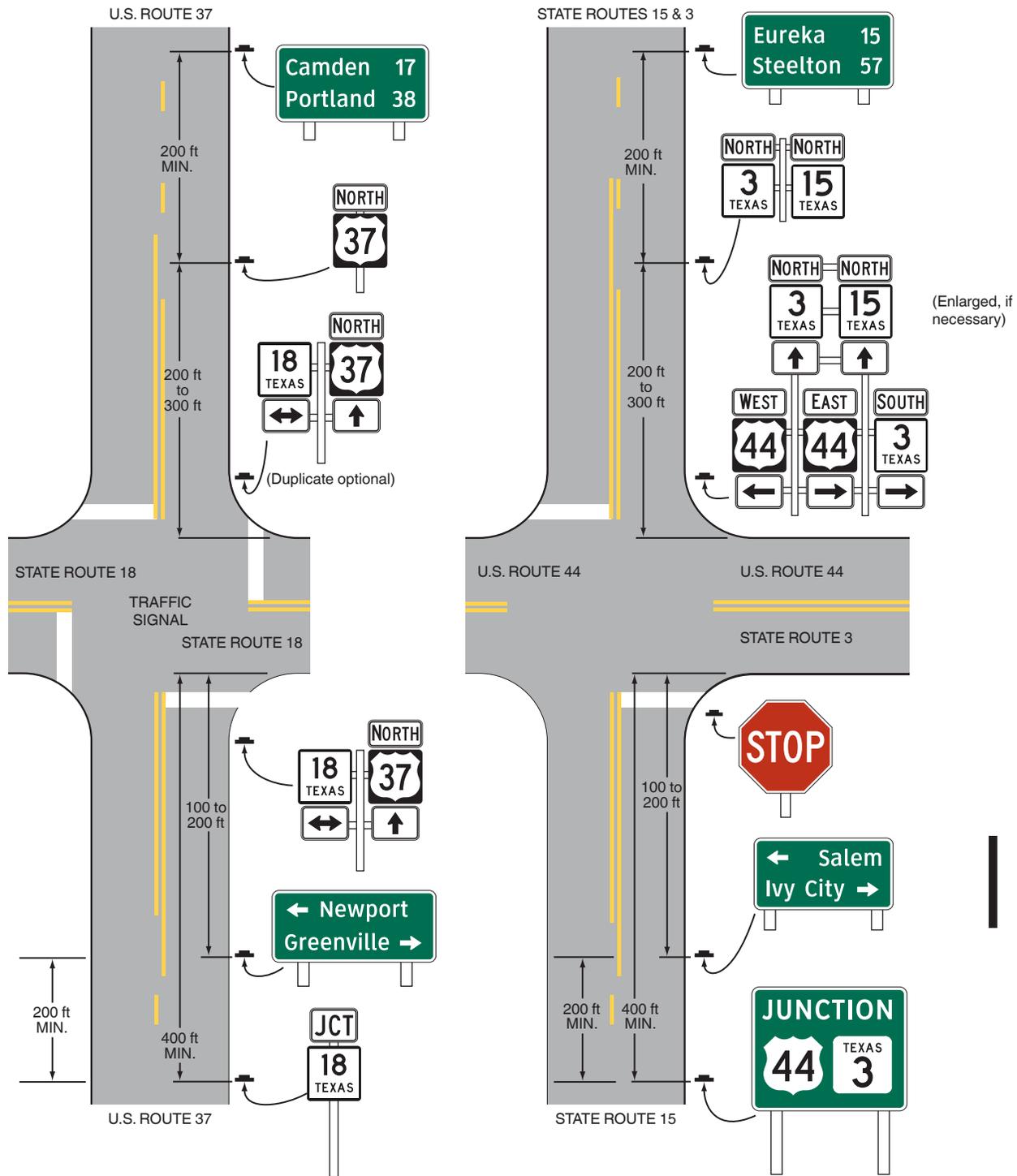
Guidance:

- 03 *In urban areas, the Junction assembly should be installed in the block preceding the intersection. In urban areas where speeds are low, the Junction assembly should not be installed more than 300 feet in advance of the intersection.*
- 04 *In rural areas, the Junction assembly should be installed at least 400 feet in advance of the intersection. In rural areas, the minimum distance between a Junction assembly and either a Destination sign or an Advance Route Turn assembly should be 200 feet.*
- 05 *Where speeds are high, greater spacings should be used.*

Option:

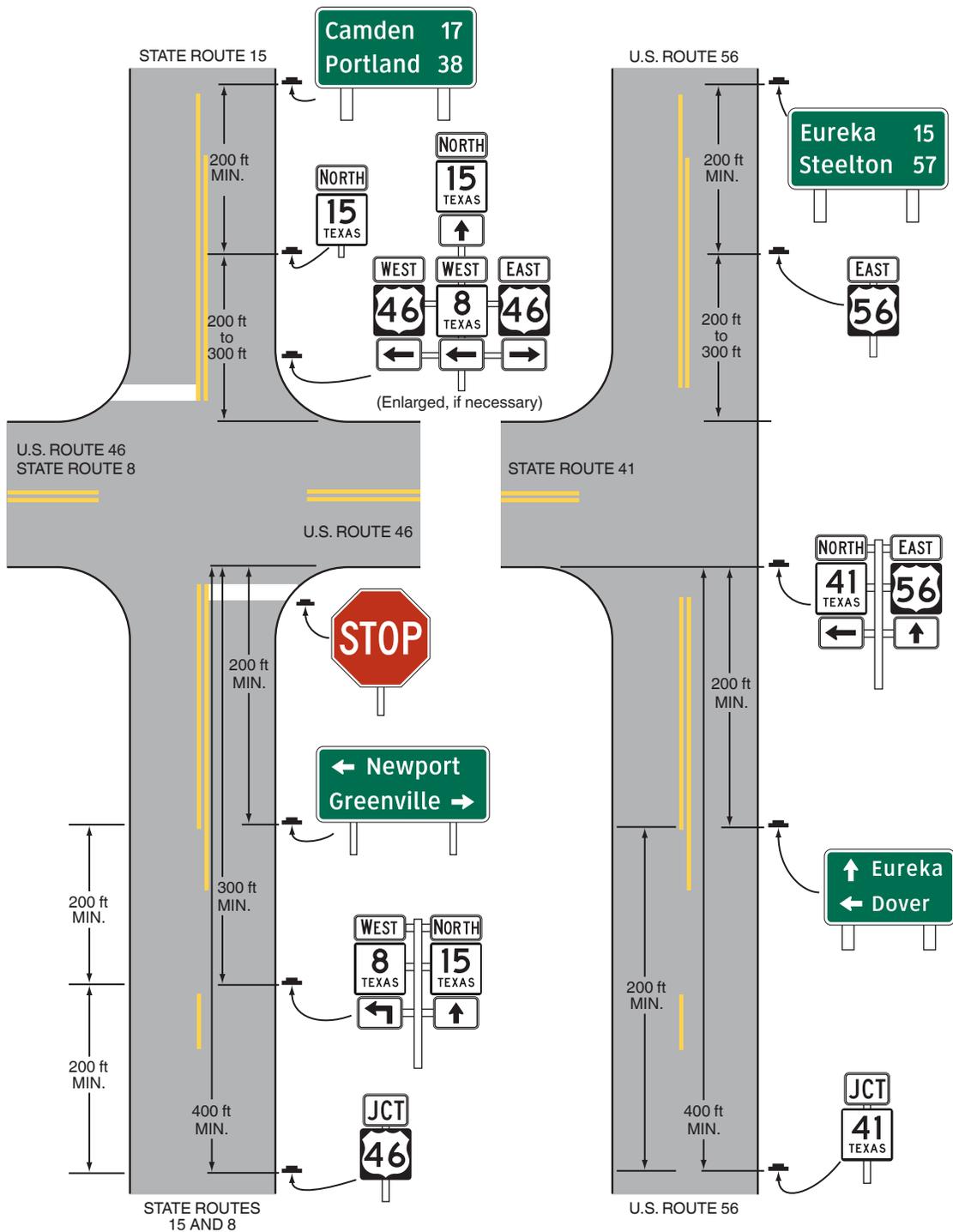
- 06 Where two or more routes are to be indicated, a single Junction auxiliary sign may be used for the assembly and all route signs grouped in a single mounting, or a Combination Junction (M2-2) sign (see Section 2D.14) may be used.

Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (for One Direction of Travel Only) (Sheet 1 of 4)



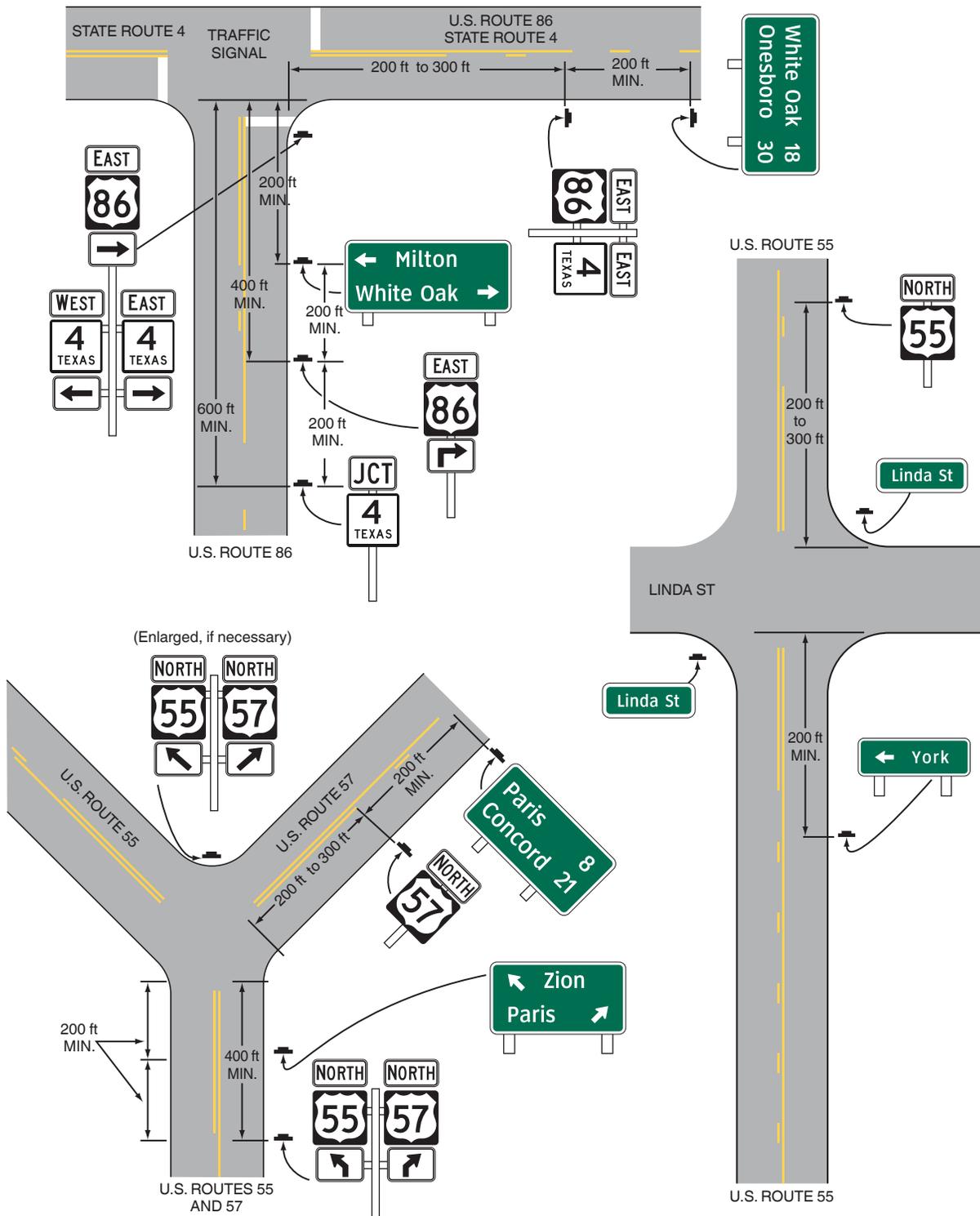
Note: The spacings shown on this figure are for rural intersections.
See Sections 2D.29, 2D.30, 2D.32, 2D.34, 2D.40, and 2D.42 for low-speed and/or urban conditions.

Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (for One Direction of Travel Only) (Sheet 2 of 4)



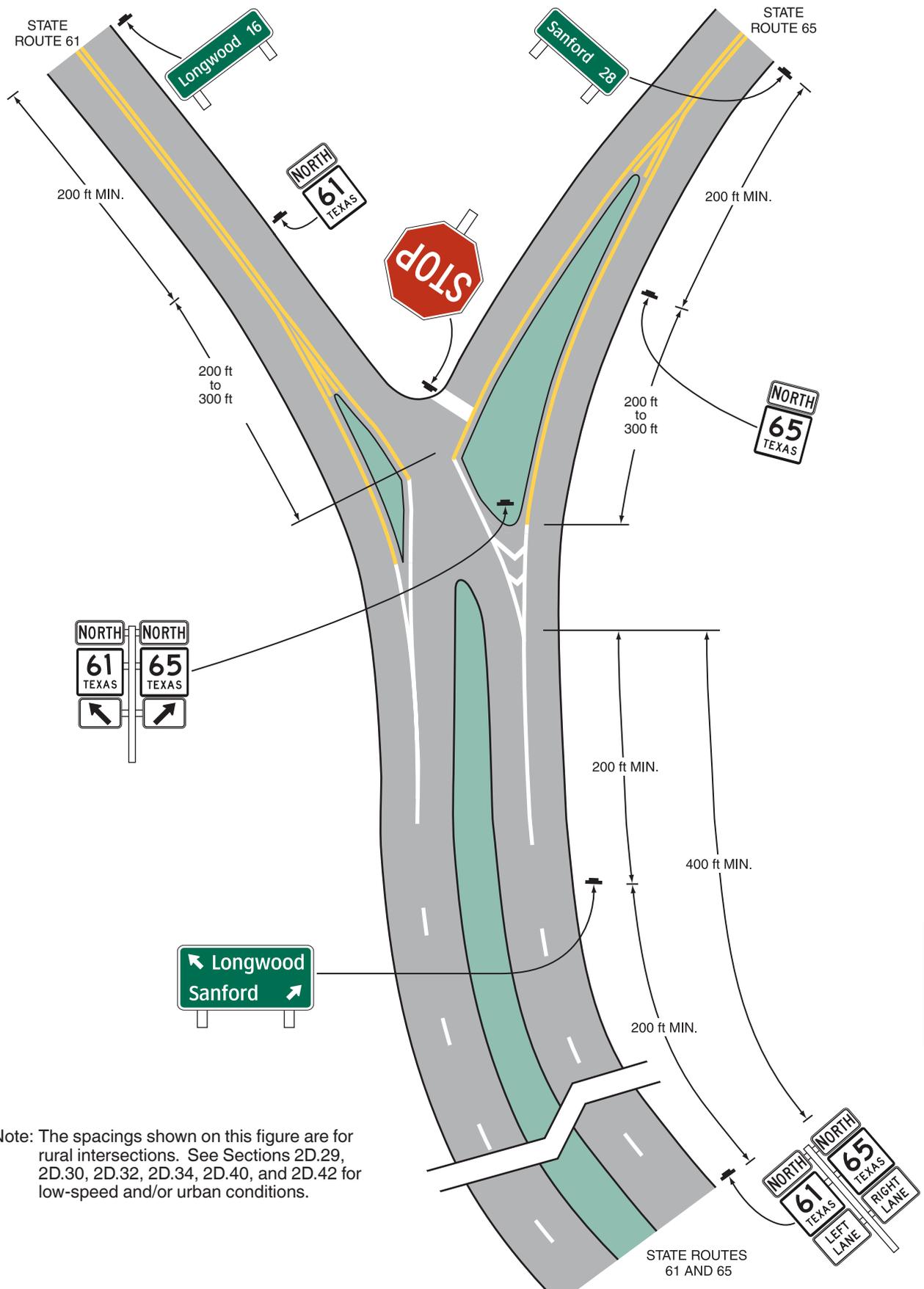
Note: The spacings shown on this figure are for rural intersections. See Sections 2D.29, 2D.30, 2D.32, 2D.34, 2D.40, and 2D.42 for low-speed and/or urban conditions.

Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (for One Direction of Travel Only) (Sheet 3 of 4)



Note: The spacings shown on this figure are for rural intersections.
See Sections 2D.29, 2D.30, 2D.32, 2D.34, 2D.40, and 2D.42 for low-speed and/or urban conditions.

Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (for One Direction of Travel Only) (Sheet 4 of 4)



Section 2D.31 Advance Route Turn Assembly

Standard:

- 01 **An Advance Route Turn assembly shall consist of a route sign, an Advance Turn Arrow or word message auxiliary sign, and a Cardinal Direction auxiliary sign, if needed. It shall be installed in advance of an intersection where a turn must be made to remain on the indicated route.**

Option:

- 02 The Advance Route Turn assembly may be used to supplement the required Junction assembly in advance of intersecting routes.

Guidance:

- 03 *Where a multiple-lane highway approaches an interchange or intersection with a numbered route, the Advance Route Turn assembly should be used to pre-position turning vehicles in the correct lanes from which to make their turn.*

Option:

- 04 Lane Designation auxiliary signs (see Section 2D.27) may be used in Advance Route Turn Assemblies in place of the Advance Turn Arrow auxiliary signs where engineering judgment indicates that specific lane information associated with each route is needed and overhead signing is not practical and the designated lane is a mandatory movement lane. An assembly with the Lane Designation auxiliary signs may supplement or substitute for an assembly with Advance Turn Arrow auxiliary signs.

Guidance:

- 05 *In low-speed areas, the Advance Route Turn assembly should be installed not less than 200 feet in advance of the turn. In high-speed areas, the Advance Route Turn assembly should be installed not less than 300 feet in advance of the turn. In rural areas, the minimum distance between an Advance Route Turn assembly and either a Destination sign or a Junction assembly should be 200 feet.*

Standard:

- 06 **An assembly that includes an Advance Turn Arrow auxiliary sign shall not be placed where there is an intersection between it and the designated turn.**

Guidance:

- 07 *Sufficient distance should be allowed between the assembly and any preceding intersection that could be mistaken for the indicated turn.*

Section 2D.32 Directional Assembly

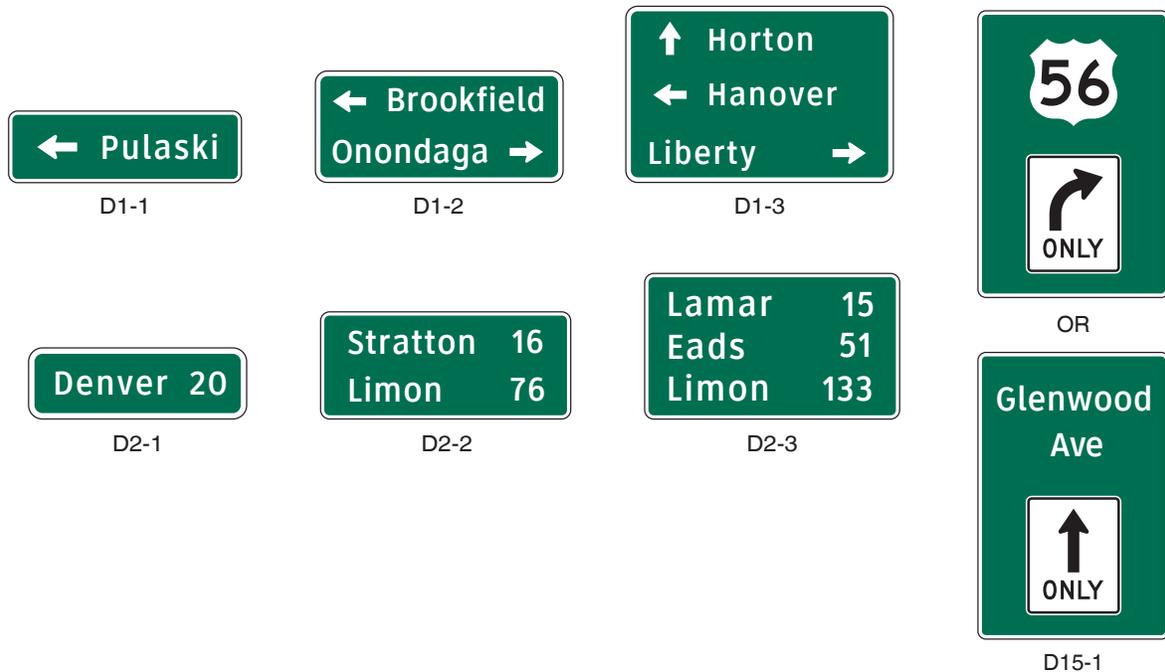
Standard:

- 01 **A Directional assembly shall consist of a Cardinal Direction auxiliary sign, if needed; a route sign; and a Directional Arrow auxiliary sign. The various uses of Directional assemblies shall be as provided in Items A through D:**

- A. Turn movements (indicated in advance by an Advance Route Turn assembly) shall be marked by a Directional assembly with a route sign displaying the number of the turning route and a single-headed arrow pointing in the direction of the turn.
- B. The beginning of a route (indicated in advance by a Junction assembly) shall be marked by a Directional assembly with a route sign displaying the number of that route and a single-headed arrow pointing in the direction of the route.
- C. An intersected route (indicated in advance by a Junction assembly) on a crossroad where the route is designated on both legs shall be designated by:
 1. Two Directional assemblies, each with a route sign displaying the number of the intersected route, a Cardinal Direction auxiliary sign, and a single-headed arrow pointing in the direction of movement on that route; or
 2. A Directional assembly with a route sign displaying the number of the intersected route and a double-headed arrow, pointing at appropriate angles to the left, right, or ahead.
- D. An intersected route (indicated in advance by a Junction assembly) on a side road or on a crossroad where the route is designated only on one of the legs shall be designated by a Directional assembly with a route sign displaying the number of the intersected route, a Cardinal Direction auxiliary sign, and a single-headed arrow pointing in the direction of movement on that route.

Guidance:

- 02 *Straight-through movements should be indicated by a Directional assembly with a route sign displaying the number of the continuing route and a vertical arrow. A Directional assembly should not be used for a*

Figure 2D-7. Destination and Distance Signs*Guidance:*

- 07 Unless a sloping arrow will convey a clearer indication of the direction to be followed, the directional arrows should be horizontal or vertical.
- 08 If several individual name signs are assembled into a group, all signs in the assembly should be of the same horizontal width.
- 09 Destination signs should be used:
- A. At the intersections of U.S. or State numbered routes with Interstate, U.S., or State numbered routes; and
 - B. At points where they serve to direct traffic from U.S. or State numbered routes to the business section of towns, or to other destinations reached by unnumbered routes.

Standard:

- 10 Where a total of three or less destinations are provided on the Advance Guide (see Section 2E.33) and Supplemental Guide (see Section 2E.35) signs, no more than three destination names shall be used on a Destination sign. Where four destinations are provided by the Advance Guide and Supplemental Guide signs, no more than four destination names shall be used on a Destination sign.

Guidance:

- 11 If space permits, four destinations should be displayed as two separate signs at two separate locations.

Option:

- 12 Where space does not permit, or where all four destinations are in one direction, a single sign may be used. Where a single sign is used and all destinations are in the same direction, the arrow may be placed below the destinations for the purpose of enhancing the conspicuity of the arrow.

Standard:

- 13 Where a single four-name sign assembly is used, a heavy line entirely across the sign or separate signs shall be used to separate destinations by direction.

Guidance:

- 14 The closest destination lying straight ahead should be at the top of the sign or assembly, and below it the closest destinations to the left and to the right, in that order. The destination displayed for each direction should ordinarily be the next county seat or the next principal city, rather than a more distant destination. In the case of overlapping routes, only one destination should be displayed in each direction for each route.

Standard:

- 15 **If more than one destination is displayed in the same direction, the name of a nearer destination shall be displayed above the name of a destination that is further away.**

Section 2D.38 Destination Signs at Circular Intersections

Standard:

- 01 **Destination signs that are used at circular intersections shall comply with the provisions of Section 2D.37, except as provided in this Section.**

Option:

- 02 Exit destination (D1-1d, D1-1e) signs (see Figure 2D-8) with diagonal upward-pointing arrows or Directional assemblies (see Section 2D.32) may be used to designate a particular exit from a circular intersection.
- 03 Exit destination (D1-2d, D1-3d) signs (see Figure 2D-8) with curved-stem arrows may be used on approaches to circular intersections to represent the left-turn movements.
- 04 Curved-stem arrows on circular intersection destination signs may point in diagonal directions to depict the location of an exit relative to the approach roadway and entry into the intersection.
- 05 Exit destination (D1-5 or D1-5a) signs (see Figure 2D-8) with a diagram of the circular intersection may be used on approaches to circular intersections.

Guidance:

- 06 *If curved-stem arrows are used on destination signs, then this arrow type should also be used consistently on any regulatory lane-use signs (see Chapter 2B), Directional assemblies (see Section 2D.32), and pavement markings (see Part 3) for a particular destination or movement.*

Support:

- 07 Figure 2D-9 illustrates two examples of guide signing for circular intersections.
- 08 Diagrammatic guide signs might be preferable where space is available and where the geometry of the circular intersection is non-typical, such as where more than four legs are present or where the legs are not at approximately 90-degree angles to each other.

Figure 2D-8. Destination Signs for Roundabouts



Standard:

- 09 **If used, diagrammatic guide signs for circular intersections shall not depict the number of lanes within the intersection circulatory roadway, or on its approaches or exits, through the use of lane lines, multiple arrow shafts for the same movement, or other methods.**

Support:

- 10 Chapter 2B contains information regarding regulatory signs at circular intersections, Chapter 2C contains information regarding warning signs at circular intersections, and Chapter 3C contains information regarding pavement markings at circular intersections.

Section 2D.39 Destination Signs at Jughandles**Standard:**

- 01 **Destination signs that are used at jughandles shall comply with the provisions of Section 2D.37, except as provided in this Section.**

Option:

- 02 If engineering judgment indicates that standard destination signs alone are insufficient to direct road users to their destinations at a jughandle, a diagrammatic guide sign depicting the appropriate geometry may be used to supplement the normal destination signs.

Support:

- 03 Section 2B.27 contains information regarding regulatory signs for jughandle turns. Figure 2B-9 shows examples of regulatory and destination guide signing for various types of jughandle turns.

Section 2D.40 Location of Destination Signs*Guidance:*

- 01 *When used in high-speed areas, Destination signs should be located 200 feet or more in advance of the intersection, and following any Junction or Advance Route Turn assemblies that might be required. In rural areas, the minimum distance between a Destination sign and either an Advance Route Turn assembly or a Junction assembly should be 200 feet.*

Option:

- 02 In urban areas, shorter advance distances may be used.
- 03 Because the Destination sign is of lesser importance than the Junction, Advance Route Turn, or Directional assemblies, the Destination sign may be eliminated when sign spacing is critical.

Support:

- 04 Figure 2D-6 shows typical placements of Destination signs.

Section 2D.41 Distance Signs (D2 Series)**Standard:**

- 01 **If used, the Distance (D2-1 through D2-3) sign (see Figure 2D-7) shall be a horizontal rectangle of a size appropriate for the required legend, carrying the names of no more than three cities, towns, junctions, or other traffic generators, and the distance (to the nearest mile) to those places.**

- 02 **The distance numerals shall be placed to the right of the destination names as shown in Figure 2D-7.**

Guidance:

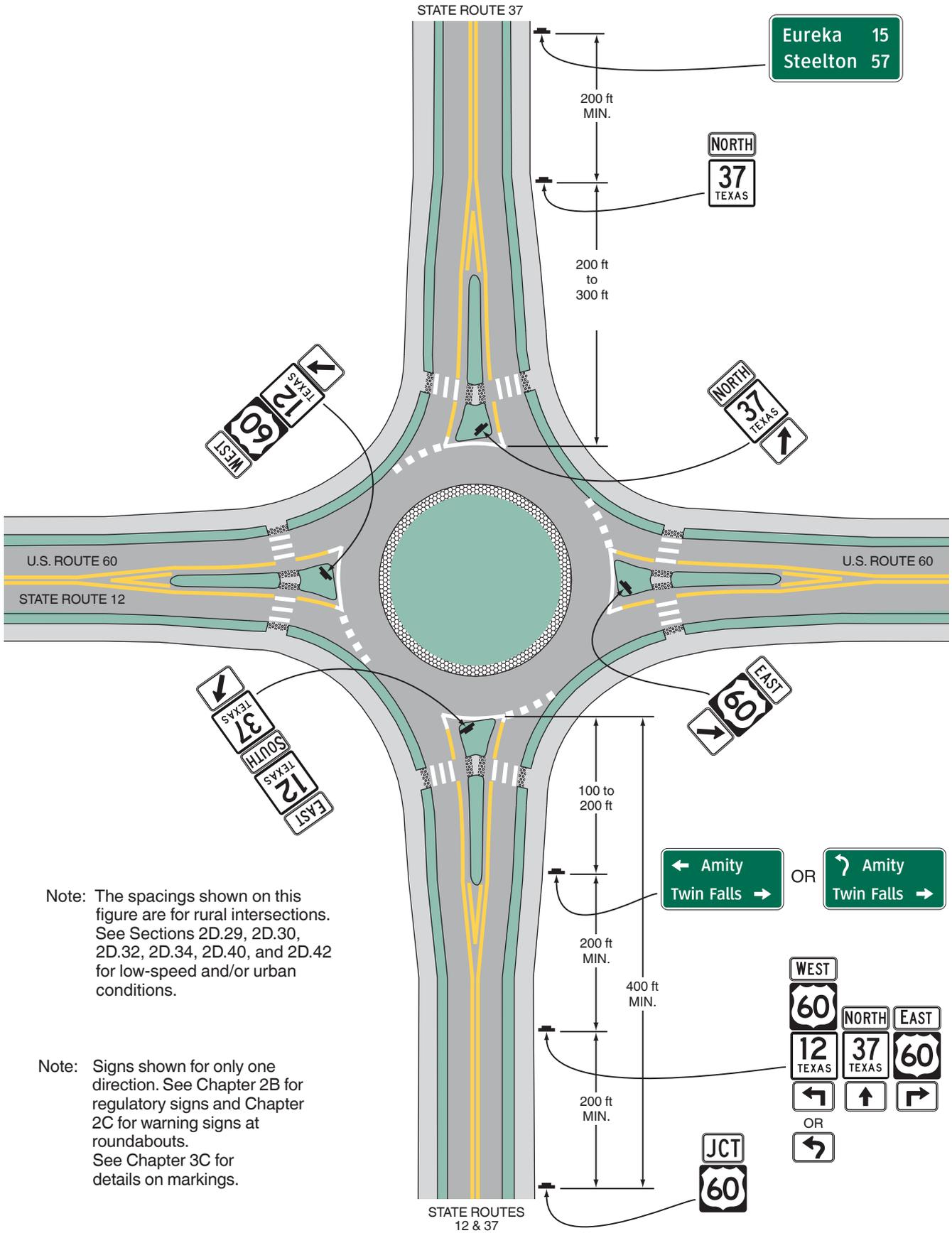
- 03 *The distance and destination displayed should be selected on a case-by-case basis by the jurisdiction that owns the road or by statewide policy. A well-defined central area or central business district should be used where one exists. In other cases, the layout of the community should be considered in relation to the highway being signed and the decision based on where it appears that most drivers would feel that they are in the center of the community in question.*

- 04 *The top name on the Distance sign should be that of the next place on the route having a post office or a railroad station, a route number or name of an intersected highway, or any other significant geographical identity. The bottom name on the sign should be that of the next major destination or control city. If three destinations are displayed, the middle line should be used to indicate communities of general interest along the route or important route junctions.*

Option:

- 05 The choice of names for the middle line may be varied on successive Distance signs to give road users additional information concerning communities served by the route.

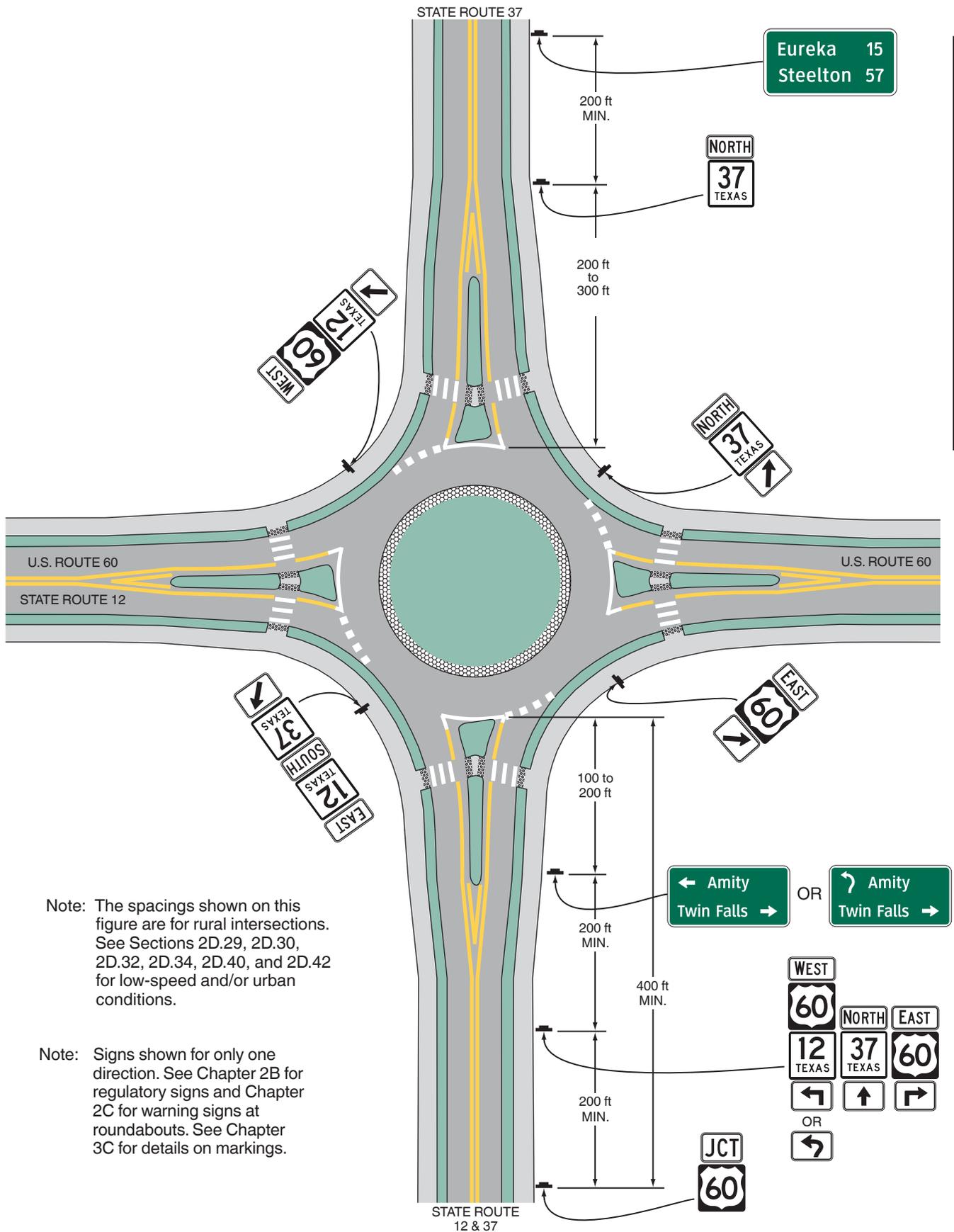
Figure 2D-9. Examples of Guide Signs for Roundabouts (Sheet 1 of 2)



Note: The spacings shown on this figure are for rural intersections. See Sections 2D.29, 2D.30, 2D.32, 2D.34, 2D.40, and 2D.42 for low-speed and/or urban conditions.

Note: Signs shown for only one direction. See Chapter 2B for regulatory signs and Chapter 2C for warning signs at roundabouts. See Chapter 3C for details on markings.

Figure 2D-9. Examples of Guide Signs for Roundabouts (Sheet 2 of 2)



Note: The spacings shown on this figure are for rural intersections. See Sections 2D.29, 2D.30, 2D.32, 2D.34, 2D.40, and 2D.42 for low-speed and/or urban conditions.

Note: Signs shown for only one direction. See Chapter 2B for regulatory signs and Chapter 2C for warning signs at roundabouts. See Chapter 3C for details on markings.

Guidance:

- 06 *The control city should remain the same on all successive Distance signs throughout the length of the route until that city is reached.*

Option:

- 07 If more than one distant point may properly be designated, such as where the route divides at some distance ahead to serve two destinations of similar importance, and if these two destinations cannot appear on the same sign, the two names may be alternated on successive signs.
- 08 On a route continuing into another State, destinations in the adjacent State may be displayed.

Section 2D.42 Location of Distance Signs*Guidance:*

- 01 *If used, Distance signs should be installed on important routes leaving municipalities and just beyond intersections of numbered routes in rural areas. If used, they should be placed just outside the municipal limits or at the edge of the built-up area if it extends beyond the limits.*
- 02 *Where overlapping routes separate a short distance from the municipal limits, the Distance sign at the municipal limits should be omitted. The Distance sign should be installed approximately 300 feet beyond the confirmation assembly (see Section 2D.34).*
- 03 *Where, just outside of an incorporated municipality, two routes are concurrent and continue concurrently to the next incorporated municipality, the top name on the Distance sign should be that of the place where the routes separate; the bottom name should be that of the city to which the greater part of the through traffic is destined.*

Support:

- 04 Figure 2D-6 shows typical placements of Distance signs.

Section 2D.43 Street Name Signs (D3-1 or D3-1a)*Guidance:*

- 01 *Street Name (D3-1 or D3-1a) signs (see Figure 2D-10) should be installed in urban areas at all street intersections regardless of other route signs that might be present and should be installed in rural areas to identify important roads that are not otherwise signed.*

Option:

- 02 For streets that are part of a U.S., State, or county numbered route, a D3-1a Street Name sign (see Figure 2D-10) that incorporates a route shield may be used to assist road users who might not otherwise be able to associate the name of the street with the route number.

Standard:

- 03 **The lettering for names of streets and highways on Street Name signs shall be composed of a combination of lower-case letters with initial upper-case letters (see Section 2A.13).**

Guidance:

- 04 *Lettering on post-mounted Street Name signs should be composed of initial upper-case letters at least 6 inches in height and lower-case letters at least 4.5 inches in height.*
- 05 *On multi-lane streets with speed limits greater than 40 mph, the lettering on post-mounted Street Name signs should be composed of initial upper-case letters at least 8-inches in height and lower-case letters at least 6 inches in height.*

Option:

- 06 For local roads with speed limits of 25 mph or less, the lettering on post-mounted Street Name signs may be composed of initial upper-case letters at least 4 inches in height and lower-case letters at least 3 inches in height.

Guidance:

- 07 *If overhead Street Name signs are used, the lettering should be composed of initial upper-case letters at least 12 inches in height and lower-case letters at least 9 inches in height.*

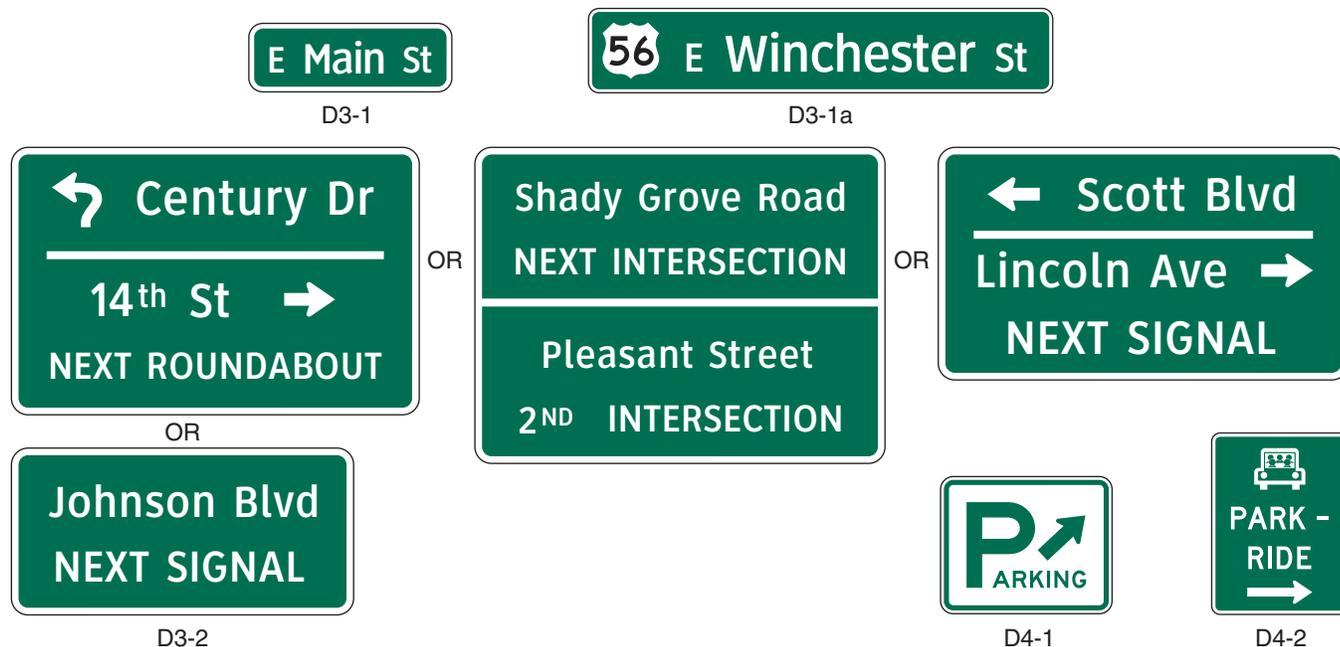
Support:

- 08 The recommended minimum letter heights for Street Name signs are summarized in Table 2D-2.

Option:

- 09 Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) or the section of the city (such as NW) on the D3-1 and D3-1a signs may be in smaller lettering, composed of initial upper-case

Figure 2D-10. Street Name and Parking Signs



letters at least 3-inches in height and lower-case letters at least 2.25 inches in height. Conventional abbreviations (see Section 1A.15) may be used except for the street name itself.

10 A pictograph (see definition in Section 1A.13) may be used on a D3-1 sign.

Standard:

11 **Pictographs shall not be displayed on D3-1a or Advance Street Name (D3-2) signs (see Section 2D.44).**

12 **If a pictograph is used on a D3-1 sign, the height and width of the pictograph shall not exceed the upper-case letter height of the principal legend of the sign.**

Guidance:

13 *The pictograph should be positioned to the left of the street name.*

Standard:

14 **The Street Name sign shall be retroreflective or illuminated to show the same shape and similar color both day and night. The color of the legend (and border, if used) shall contrast with the background color of the sign.**

Option:

15 The border may be omitted from a Street Name sign.

16 An alternative background color other than the normal guide sign color of green may be used for Street Name (D3-1 or D3-1a) signs where the highway agency determines this is necessary to assist road users in determining jurisdictional authority for roads.

Standard:

17 **Alternative background colors shall not be used for Advance Street Name (D3-2) signs (see Section 2D.44).**

18 **The only acceptable alternative background colors for Street Name (D3-1 or D3-1a) signs shall be blue, brown, or white. Regardless of whether green, blue, or brown is used as the background color for Street Name (D3-1 or D3-1a) signs, the legend (and border, if used) shall be white. For Street Name signs that use a white background, the legend (and border, if used) shall be black.**

Guidance:

19 *An alternative background color for Street Name signs, if used, should be applied to the Street Name (D3-1 or D3-1a) signs on all roadways under the jurisdiction of a particular highway agency.*

20 *In business or commercial areas and on principal arterials, Street Name signs should be placed at least on diagonally opposite corners. In residential areas, at least one Street Name sign should be mounted at each intersection. Signs naming both streets should be installed at each intersection. They should be mounted with their faces parallel to the streets they name.*

Table 2D-2. Recommended Minimum Letter Heights on Street Name Signs

Type of Mounting	Type of Street or Highway	Speed Limit	Recommended Minimum Letter Height	
			Initial Upper-Case	Lower-Case
Overhead	All types	All speed limits	12 inches	9 inches
Post-mounted	Multi-lane	More than 40 mph	8 inches	6 inches
Post-mounted	Multi-lane	40 mph or less	6 inches	4.5 inches
Post-mounted	2-lane	All speed limits	6 inches*	4.5 inches*

* On local two-lane streets with speed limits of 25 mph or less, 4-inch initial upper-case letters with 3-inch lower-case letters may be used.

Option:

- 21 To optimize visibility, Street Name signs may be mounted overhead. Street Name signs may also be placed above a regulatory or STOP or YIELD sign with no required vertical separation.

Guidance:

- 22 *In urban or suburban areas, especially where Advance Street Name signs for signalized and other major intersections are not used, the use of overhead Street Name signs should be strongly considered.*

Option:

- 23 At intersection crossroads where the same road has two different street names for each direction of travel, both street names may be displayed on the same sign along with directional arrows.

- 24 On lower speed roadways, historic street name signs within locally identified historic districts that are consistent with the criteria contained in 36 CFR 60.4 for such structures and districts may be used without complying with the provisions of Paragraphs 3, 4, 6, 9, 12 through 14, and 18 through 20 of this section.

Support:

- 25 Information regarding the use of street names on supplemental plaques for use with intersection-related warning signs is contained in Section 2C.58.

Section 2D.44 Advance Street Name Signs (D3-2)

Support:

- 01 Advance Street Name (D3-2) signs (see Figure 2D-10) identify an upcoming intersection. Although this is often the next intersection, it could also be several intersections away in cases where the next signalized intersection is referenced.

Standard:

- 02 **Advance Street Name (D3-2) signs, if used, shall supplement rather than be used instead of the Street Name (D3-1) signs at the intersection.**

Option:

- 03 Advance Street Name (D3-2) signs may be installed in advance of signalized or unsignalized intersections to provide road users with advance information to identify the name(s) of the next intersecting street to prepare for crossing traffic and to facilitate timely deceleration and/or lane changing in preparation for a turn.

Guidance:

- 04 *On arterial highways in rural areas, Advance Street Name signs should be used in advance of all signalized intersections and in advance of all intersections with exclusive turn lanes.*

- 05 *In urban areas, Advance Street Name signs should be used in advance of all signalized intersections on major arterial streets, except where signalized intersections are so closely spaced that advance placement of the signs is impractical.*

- 06 *The heights of the letters on Advance Street Name signs should be the same as those used for Street Name signs (see Section 2D.43).*

Standard:

- 07 **If used, Advance Street Name signs shall have a white legend and border on a green background.**

- 08 **If used, Advance Street Name signs shall provide the name(s) of the intersecting street(s) on the top line(s) of the legend and the distance to the intersecting streets or messages such as NEXT SIGNAL, NEXT INTERSECTION, NEXT ROUNDABOUT, or directional arrow(s) on the bottom line of the legend.**

- 09 **Pictographs shall not be displayed on Advance Street Name signs.**

Section 2D.53 Signing of Named Highways

Option:

- 01 Guide signs may contain street or highway names if the purpose is to enhance driver communication and guidance; however, they are to be considered as supplemental information to route numbers.

Standard:

- 02 **Highway names shall not replace official numeral designations.**
- 03 **Memorial names (see Section 2M.10) shall not appear on supplemental signs or on any other information sign on or along the highway or its intersecting routes.**
- 04 **The use of route signs shall be restricted to signs officially used for guidance of traffic in accordance with this Manual and the “Purpose and Policy” statement of the American Association of State Highway and Transportation Officials that applies to Interstate and U.S. numbered routes (see Page i for AASHTO’s address).**

Option:

- 05 Unnumbered routes having major importance to proper guidance of traffic may be signed if carried out in accordance with the aforementioned policies. For unnumbered highways, a name to enhance route guidance may be used where the name is applied consistently throughout its length.

Guidance:

- 06 *Only one name should be used to identify any highway, whether numbered or unnumbered.*

Section 2D.54 Crossover Signs (D13-1 and D13-2)

Option:

- 01 Crossover signs may be installed on divided highways to identify median openings not otherwise identified by warning or other guide signs.

Standard:

- 02 **A CROSSOVER (D13-1) sign (see Figure 2D-21) shall not be used to identify a median opening that is permitted to be used only by official or authorized vehicles. If used, the sign shall be a horizontal rectangle of appropriate size to carry the word CROSSOVER and a horizontal directional arrow. The CROSSOVER sign shall have a white legend and border on a green background.**

Guidance:

- 03 *If used, the CROSSOVER sign should be installed immediately beyond the median opening, either on the right-hand side of the roadway or in the median.*

Figure 2D-21. Crossover, Passing Lane, and Slow Vehicle Signs



D13-1



D13-2



D15-10T



D15-11T



D17-7

* The words TRUCK or CLIMBING may be substituted for the word PASSING D15-10T and D15-11T.

Option:

04 The Advance Crossover (D13-2) sign (see Figure 2D-21) may be installed in advance of the CROSSOVER sign to provide advance notice of the crossover.

Standard:

05 **If used, the Advance Crossover sign shall be a horizontal rectangle of appropriate size to carry the word CROSSOVER and the distance to the median opening. The sign shall have white legend and border on a green background.**

Guidance:

06 *The distance displayed on the Advance Crossover sign should be 1 MILE, 1/2 MILE, or 1/4 MILE, unless unusual conditions require some other distance. If used, the sign should be installed either on the right-hand side of the roadway or in the median at approximately the distance displayed on the sign.*

Section 2D.55 ~~National Scenic Byways Signs (D6-4, D6-4a)~~ DELETED

Section 2D.56 Texas Heritage Trail Program

Support:

01 Texas Heritage Trail signs (see Figure 2D-22TA) are informational guide signs, designed to provide road users with route guidance in following a trail of particular cultural, historical, or geographical significance. The program consists of 10 scenic driving trails created in 1968. The Texas Historical Commission Administers the program and has created maps and brochures for each trail.

Figure 2D-22. DELETED

Figure 2D-22TA. Texas Heritage Trails



D71-BR



D71-FT



D71-IN



D71-MT



D71-PL



D71-FR



D71-HC



D71-LA



D71-PE



D71-TR



D71-TP

- B. *The Advance Guide sign to indicate the next interchange exit should be placed near the crossroad location. If the crossroad goes over the mainline, the Advance Guide sign should be placed on the overcrossing structure or on a separate structure immediately in front of the overcrossing structure.*

Section 2E.12 Pull-Through Signs (E6-2, E6-2a)

Support:

- 01 Pull-Through (E6-2, E6-2a) signs (see Figure 2E-2) are overhead guide signs intended for through traffic.

Guidance:

- 02 *Pull-Through signs should be used where the geometrics of a given interchange are such that it is not clear to the road user as to which is the through roadway, or where additional route guidance is desired. Pull-Through signs with down arrows should be used where the alignment of the through lanes is curved and the exit direction is straight ahead, where the number of through lanes is not readily evident, and at multi-lane exits where there is a reduction in the number of through lanes.*



Support:

- 03 Sections 2E.20 through 2E.24 contain information regarding the use of signing options at multi-lane exits where there is a reduction in the number of through lanes and a through lane becomes an interior option lane for through or exiting traffic.

Section 2E.13 Designation of Destinations

Standard:

- 01 **The direction of a freeway and the major destinations or control cities along it shall be clearly identified through the use of appropriate destination legends (see Section 2D.37). Successive freeway guide signs shall provide continuity in destination names and consistency with available map information. At any decision point, a given destination shall be indicated by way of only one route.**

Guidance:

- 02 *Control city legends should be used in the following situations along a freeway:*
- A. *At interchanges between freeways;*
 - B. *At separation points of overlapping freeway routes;*
 - C. *On directional signs on intersecting routes, to guide traffic entering the freeway;*
 - D. *On Pull-Through signs; and*
 - E. *On the bottom line of post-interchange distance signs.*

For non-Interstate roadways, major destinations should be prioritized by the following:

- A. *The next city that serves as the government jurisdiction's county seat; and*
- B. *A city or town considered by engineering judgment to be a significant destination.*

Support:

- 03 Continuity of destination names is also useful on expressways serving long-distance or intrastate travel.
- 04 The determination of major destinations or control cities is important to the quality of service provided by the freeway. Control cities on freeway guide signs are selected by the States and are contained in the "Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways, 4th Edition/Guide Signs, Part II: Guidelines for Airport Guide Signing/Guide Signs, Part III: List of Control Cities for Use in Guide Signs on Interstate Highways," published by and available from the American Association of State and Highway Transportation Officials (see Section 1A.11).

Section 2E.14 Size and Style of Letters and Signs

Standard:

- 01 **Except as provided in Section 2A.11, the sizes of freeway and expressway guide signs that have standardized designs shall be as shown in the Standard Highway Sign Designs for Texas (see Section 1A.11).**

Standard:

- 02 For all freeway and expressway signs that do not have a standardized design, the message dimensions shall be determined first, and the outside sign dimensions secondarily. Word messages in the legend of freeway and expressway guide signs shall be in letters at least 8 inches high. Larger lettering shall be used for major guide signs at or in advance of interchanges and for all overhead signs. Minimum numeral and letter sizes for freeway and expressway guide signs shall be as shown in Tables 2E-4T and 2E-5 and Figure 2E-2T. All names of places, streets, and highways on freeway and expressway guide signs shall be composed of lower-case letters with initial upper-case letters. The letters and the numerals used shall be as shown in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11). The nominal loop height of the lower-case letters shall be 3/4 of the height of the initial upper-case letter (see Paragraph 2 of Section 2D.05 for additional information on the specification of the letter heights). Other word legends shall be composed of upper-case letters. Interline and edge spacing shall be as provided in Section 2E.15.
- 03 Lettering size on freeway and expressway signs shall be the same for both rural and urban conditions. Support:
- 04 Sign size is determined primarily in terms of the length of the message and the size of the lettering necessary for proper legibility. Letter style and height, and arrow design have been standardized for freeway and expressway signs to assure uniform and effective application.

Table 2E-4T. Minimum Letter and Numeral Sizes for Advance Guide and Exit Direction Signs

Type of Sign and Sign Elements	Minimum Size in inches
Exit Panel	
Word	10
Numeral and Letter	15
Interstate Route Sign	
Numeral (see note 1 below)	18 D Series
Shield (1-2 Digit)	36 x 36
Shield (3 Digit)	45 x 36
U.S. or State Route Sign, Business, Loop or Spur Interstate Route Sign	
Numeral (see note 1 below)	18 D Series
Shield (1-2 Digit)	36 x 36
Shield (3 Digit)	45 x 36
U.S. or State Route Text Identification (Example: US 56)	
Numerals & Letters	15 (18*)
Cardinal Direction	
First Letter	15 (18*)
Rest of Word	12 (15*)
Auxiliary and Alternative Route Legends (Examples: JCT, TO, ALT, BUSINESS)	
Word	12 (15*)
Name of Place, Street or Highway	
Word	16 (20*)
Distance Message	
Numeral	15 (18*)
Fraction	10 (12*)
Word	10 (12*)
Exit Gore	
Word	12
Numerals & Letters	18

- * Major Interchange ground-mount signs shall use larger font shown in parenthesis.
See the Standard Highway Sign Design for Texas (SHSD) book for font styles and Sign layout details.

05 Designs for upper-case and lower-case alphabets together with Tables of recommended letter spacing, are shown in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).

Guidance:

06 *Freeway lettering sizes should be used when expressway geometric design is comparable to freeway standards.*

07 *Other sign letter size requirements not specifically identified elsewhere in this Manual should be guided by these specifications. Abbreviations (see Section 2E.17) should be kept to a minimum.*

Support:

08 **A sign mounted over a particular roadway lane to which it applies might have to be limited in horizontal dimension to the width of the lane, so that another sign can be placed over an adjacent lane. The necessity to maintain proper vertical clearance might also place a further limitation on the size of the overhead sign and the legend that can be accommodated.**

Section 2E.15 Interline and Edge Spacing

Guidance:

01 *Interline spacing of upper-case letters should be approximately three-fourths the average of upper-case letter heights in adjacent lines of letters.*

02 *The spacings to the top and bottom borders should be equal to the average of the letter height of the adjacent line of letters. The lateral spacing to the vertical borders should be essentially the same as the height of the largest letter.*

Section 2E.16 Sign Borders

Standard:

01 **Signs shall have a border of the same color as the legend in order to outline their distinctive shape and thereby give them easy recognition and a finished appearance.**

Figure 2E-2T. Letter Style and Minimum Letter/Numeral Sizes for Advance Guide Signs



* Refer to Table 2E-4T

Table 2E-5. Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Sign Type

Type of Sign	Minimum Size
Pull-Through Signs	
Destinations — Upper-Lower Case Letters	16
Route Signs as Message	
Cardinal Direction	
First Letter	15
Rest of the Word	12
1- or 2-Digit Shield	36 x 36
3-Digit Shield	45 x 36
B. Supplemental Guide Signs	
Exit Number Words-	10
Exit Number Numerals and Letters	15
Place Names — Upper -Lower-Case Letters	13.3
Action Messages	10
C. Interchange Sequence Signs	
Words — Upper-Lower Case Letters	13.33
Numerals	13.33
Fraction Numerals	10
D. Next XX Exits Sign	
Place Names — Upper-Lower Case Letters	13.33
NEXT XX EXITS - Words	10
NEXT XX EXITS - Number	15
E. Distance Signs	
Words — Upper-Lower Case Letters	8
Numerals	8
F. General Services Signs	
Exit Number Words	10
Exit Number Numerals and Letters	15
Services	10
G. Rest Area Scenic Area Signs	
Words	12
Distance Numeral	15
Distance Fractions	10
Distance Words	10
Action Message Words	12
H. Reference Posts	
Words	4
Numerals	10

Type of Sign	Minimum Size
I. Boundary and Orientation Signs	
Words — Upper-Lower Case Letters	8
J. Next Exit and Next Services Signs	
Words and Numerals	8
K. Exit Only Signs	
Words	12
L. Overhead Down Arrow Signs	
Arrowhead Width	32
Arrow Shaft Width	6.5
Arrow Height	22
M. Overhead Arrow-Per-Lane Signs	
Arrowhead (Type D Directional Arrow)	21
Arrow Shaft Width	7.75
Arrow Height	
Through	66
Left Only	45
Right Only	45
Optional-Diverge (Through with Left or Right)	66
Optional-Split (Left and Right)	55
Vertical Separator Width	2
Vertical Space between Vertical Separator and Top of Nearest Arrow	8
Horizontal Space between Vertical Separator and Top of Nearest Through Arrow	15
Horizontal Space between Arrow Shaft and EXIT and ONLY panels	12
EXIT and ONLY Panels	54 x 18
N. Diagrammatic Signs	
Arrowhead (Type D Directional Arrow)	13.5*
Lane Widths	5
Lane Line Segments	1 x 6
Spacing between Lane Line Segments	6
Stem Height to Upper Point of Departure	30
Horizontal Space between Arrowhead and Route Shield or Destination	12

* The size shown is the arrowhead width per lane depicted on the corresponding arrow shaft

Note: Sizes are shown in inches and where applicable are shown as width x height

Guidance:

- 02 For guide signs larger than 60 square feet, the border should have a width of 2 inches. For smaller guide signs, a border width of 1 inch should be used, but the width should not exceed the stroke width of the lettering of the principal legend on the sign.
- 03 Corner radii of sign borders should be 1/8 of the minimum sign dimension on guide signs, except that the radii should not exceed 12 inches on any sign.

Option:

- 04 The sign material in the area outside of the corner radius may be trimmed.

Guidance:

- 06 *If used, the Pay Toll Cash (E90-8T) sign should be installed downstream from the Advance Toll Plaza (E90-10T) sign where some or all of the lanes are required to come to a stop to pay a toll (see Figure 2F-3). The location of the signs should coincide with the approximate location where the mainline lanes begin to widen on the approach to the toll plaza lanes.*

Standard:

- 07 **The Pay Toll Cash (E90-8T) sign shall have a black legend and border on a white background. See “Standard Highway Sign Designs for Texas” book for design details.**

Section 2F.09 Stop Ahead Pay Toll Warning Plaque (W9-6aP)**Option:**

- 01 The Stop Ahead Pay Toll (W9-6aP) plaque (see Figure 2F-3) may be installed above the appropriate guide sign at the location specified for the Stop Ahead Pay Toll (W9-6a) sign (see Section 2F.08) if there is insufficient space for the W9-6a sign at that location.

Standard:

- 02 **The W9-6aP plaque shall be a horizontal rectangle with black legend and border on a yellow background. The legend shall include STOP AHEAD PAY TOLL and, except for toll-ticket facilities, the toll for passenger or 2-axle vehicles. Where the toll for passenger or 2-axle vehicles is variable by time of day, a changeable message element shall be incorporated into the W9-6aP plaque to display the toll in effect. For toll plazas where road users entering a toll-ticket facility are issued a toll ticket, the legend PAY TOLL shall be replaced with a suitable legend such as TAKE TICKET.**

Option:

- 03 The toll for passenger or 2-axle vehicles may be omitted from the W9-6aP plaque if the toll information is displayed on the guide sign that the plaque accompanies.

Section 2F.10 LAST FREE EXIT (W90-5TP) and FREE EXIT (W90-6TP) Warning Plaques**Guidance:**

- 01 *The LAST FREE EXIT (W90-5TP) plaque (see Figure 2F-3) should be used to notify road users of the last exit from a highway before it becomes a facility on which toll payments are required. The plaque should be installed above the appropriate guide signs for the exit (see Sections 2E.33 and 2E.36). If the LAST FREE EXIT plaque is used on roadways with numbered exits, the LAST FREE EXIT plaque should be installed below the Exit Number panel (see Section 2E.31). The FREE EXIT (W90-6TP) plaque (see Figure 2F-3) should be used to notify road users of an exit to a non-tolled roadway.*

Standard:

- 02 **The W90-5TP and W90-6TP plaques shall have a black legend and border on a yellow background.**

Section 2F.10A TOLL Route Signs (M90 Series) and Auxiliary Signs (M3-1 through M3-4 and M6 Series)**Guidance:**

- 01 *Toll route signs should be used on guide signs or sign assemblies as necessary for guidance on toll roads and approaches to toll roads. The toll route sign designs should be as shown in Figure 2F-3A and detailed in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).*

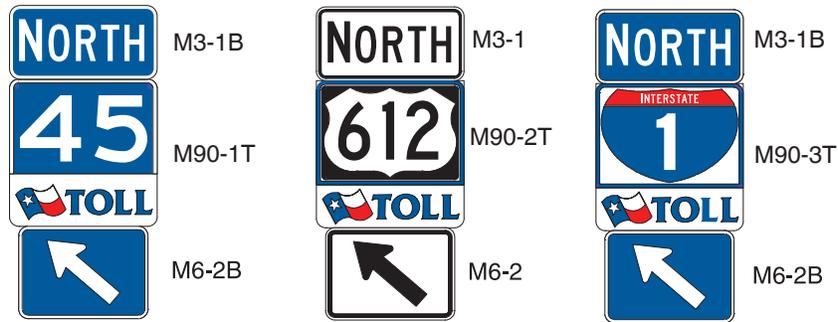
- 02 *Cardinal direction auxiliary signs (M3-1 through M3-4) and directional arrow auxiliary signs (M6 series) used for small sign assemblies on US highways should have a black legend and border on a white background. For all other highways, including interstates, auxiliary signs should have a white legend and border on a blue background (see Figure 2F-3TA).*

Standard:

- 03 **A Toll Route Sign shall include the term “TOLL” within the design of the route sign.**

Section 2F.11 TOLL Auxiliary Sign (M4-15)**Standard:**

- 01 **The TOLL (M4-15) auxiliary sign (see Figure 2F-4) shall have a black legend and border on a yellow background and shall be mounted directly above the route sign of a numbered toll highway or, if used, above the cardinal direction and alternative route auxiliary signs, in any route sign assembly providing**

Figure 2F-3TA. Examples of TOLL Route Small Sign Assemblies

directions from a non-toll highway to the toll highway or to a segment of a highway on which the payment of a toll is required **except as noted in the guidance below.**

Guidance:

- 02 The TOLL (M4-15) auxiliary sign should not be mounted above the route sign if the route sign incorporates the term “TOLL” within the design of the route sign see Figure 2F-4).

Section 2F.12 Electronic Toll Collection (ETC) Account-Only Auxiliary Signs (M4-16 and M4-20)

Standard:

- 01 In any route sign assembly providing directions from a non-toll highway to a toll facility, or to a tolled segment of a highway, where electronic toll collection (ETC) is the only payment method accepted and all vehicles are required to have a registered ETC account, the ETC Account-Only (M4-20) auxiliary sign. (see Figure 2F-4) shall be mounted directly below the route sign of the numbered or named toll facility. The M4-20 auxiliary sign shall have a white border and purple background and incorporate the pictograph adopted by the toll facility’s ETC payment system and the word ONLY in black letters on a white panel set on the purple background of the sign.

Option:

- 02 The NO CASH (M4-16) auxiliary sign (see Figure 2F-4) with a black legend and border on a white background may be used in a route sign assembly directly below the M4-20 auxiliary sign.

Section 2F.13 Toll Facility and Toll Plaza Guide Signs – General

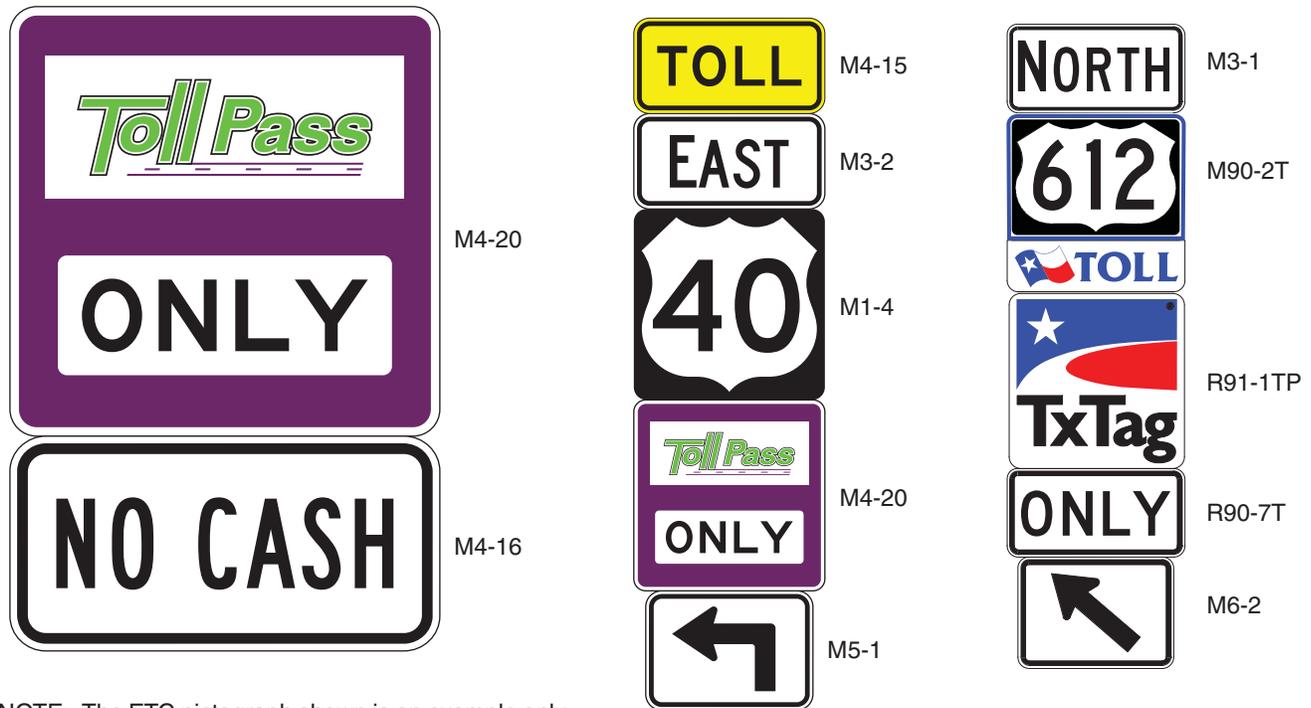
Support:

- 01 Toll plazas are used on many toll highways, bridges, and tunnels for collection of tolls from road users. Electronic toll collection and/or open-road tolling might also be used on such facilities, either in addition to or in place of collecting toll payments at toll plazas.
- 02 Chapter 2G contains information regarding signs for preferential and managed lanes that are applicable to toll roads.
- 03 Chapter 3E contains information regarding pavement markings for certain toll plaza applications.

Standard:

- 04 Directional assemblies for entrances to a toll highway or to a road leading directly to a toll highway with no opportunity to exit before paying or being charged a toll, shall clearly indicate that the facility is a toll facility. The TOLL (M4-15) auxiliary sign (see Section 2F.11) shall be used above the route sign of a numbered toll facility in any route sign assembly that provides directions to the toll route from another highway unless the route sign incorporates the term “TOLL” within the design of the route sign (see Figure 2F-5).
- 05 A rectangular panel with the black legend TOLL on a yellow background shall be incorporated into the guide signs leading road users to a toll highway unless the route sign incorporates the term “TOLL” within the design of the route sign (see Figure 2F-5). If a toll route sign is used on a guide sign, a toll banner shall be used (see Figure 2F-5).
- 06 Guide signs for toll highways, toll plazas, and tolled or priced managed lanes (see Chapter 2G) shall have white legends and borders on green backgrounds, except as specifically provided by Sections 2F.13 through 2F.16.

Figure 2F-4. ETC Account-Only Auxiliary Signs for Use in Route Sign Assemblies



NOTE: The ETC pictograph shown is an example only. The pictograph for the toll facility's adopted ETC system shall be used.

Example Route Sign Assemblies

Option:

07 Where conditions do not permit separate signs, or where it is important to associate a particular regulatory or warning message with specific guidance information, regulatory and/or warning messages may be combined with guide signs for toll plazas using plaques, header panels, or rectangular regulatory or warning panels incorporated within the guide signs, as long as the proper legend and background colors are preserved.

Standard:

08 When regulatory messages are incorporated within a guide sign, they shall be on a rectangular panel with black legend on a white background. When warning messages are incorporated within a guide sign, they shall be on a rectangular panel with black legend on a yellow background.

Support:

09 Figure 2F-5 shows examples of guide signs for entrances to various types of toll highways and for ETC account-only entrances to non-toll highways.

Standard:

10 Signing for entrances to toll highways where ETC is employed only through license plate character recognition such that road users are not required to establish a toll account or register their vehicle equipment shall comply with the provisions of Paragraphs 4 and 5 (see Figure 2F-6).

11 If only vehicles with registered ETC accounts are allowed to use a toll highway, the guide signs for entrances to such facilities shall incorporate the pictograph adopted by the toll facility's ETC payment system and the regulatory message ONLY (see Figures 2F-1, 2F-5, and 2F-6). The use, size, and placement of the ETC pictograph shall comply with the provisions of Sections 2F.03 and 2F.04.

Support:

12 Sections 2F.11, 2F.12, and 2F.17 contain additional provisions regarding signs for toll highways that only accept ETC payments.

13 Sections 2G.16 through 2G.18 contain additional provisions regarding signs for priced managed lanes that only accept ETC payments.

Option:

14 Where a toll highway on which tolls are collected only electronically also accepts payments from registered toll account users and those road users not registered in a toll account program are assessed a nominal surcharge

Figure 2F-5. Examples of Guide Signs for Entrances to Toll Highways or Ramps

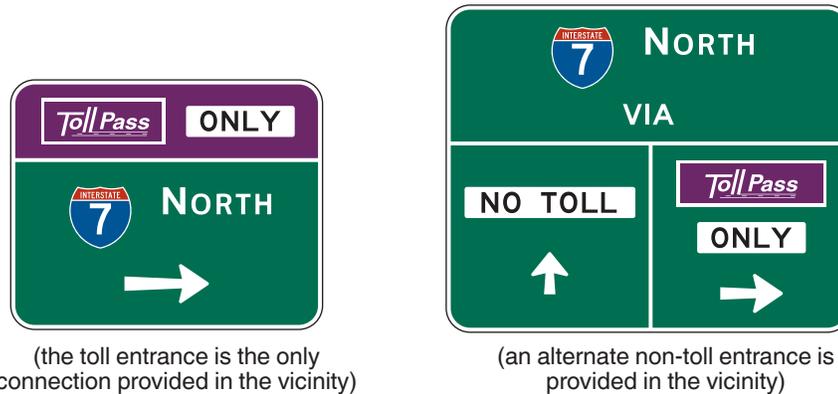
A - ENTRANCE TO A TOLL HIGHWAY ON WHICH REGISTRATION IN A TOLL ACCOUNT PROGRAM IS NOT REQUIRED



B - ENTRANCE TO AN ETC ACCOUNT-ONLY TOLL HIGHWAY OR ENTRANCE TO A TOLL HIGHWAY VIA AN ETC ACCOUNT-ONLY RAMP



C - ENTRANCE TO A NON-TOLL HIGHWAY VIA AN ETC ACCOUNT-ONLY TOLL ENTRANCE RAMP



Note: The ETC pictographs shown are examples only. The pictograph for the toll facility's adopted ETC system shall be used.

in addition to the toll, or registered toll account users are assessed a discounted toll, such information may be displayed on a separate information sign near the entrance to such a facility (see Figure 2F-6).

Support:

15 Figure 2F-7 shows an example of guide signs for alternative toll and non-toll ramp connections to a non-toll highway.

16 Many different ETC payment systems are used by the various toll facility operators. Some of these systems accept payment from other systems' accounts.

the type of preferential lane (such as the diamond symbol for HOV or the legend BUS LANE) on a black background with a white border, and the bottom portion of the sign shall be comprised of the standard word message or symbol of the standard warning sign as a black legend on a yellow background with a black border (see Figure 2G-4).

Guidance:

- 03 *Where lateral clearance is limited, such as when a post-mounted warning sign applicable only to a preferential lane is installed on a median barrier, the edges of the sign should not project beyond the outer edges of the barrier.*

Option:

- 04 *Where lateral clearance is limited, warning signs applicable only to a preferential lane that are post-mounted on a median barrier and that are 72 inches or less in width may be skewed up to 45 degrees in order to fit within the barrier width or may be mounted higher, such that the vertical clearance to bottom of the sign, light fixture, or its structural support, whichever is lowest, is not less than 14 feet above any portion of the pavement and shoulders.*

Standard:

- 05 **Where lateral clearance is limited, Preferential Lane warning signs that are post-mounted on a median barrier and that are wider than 72 inches shall be mounted with a vertical clearance that complies with the provisions of Section 2A.18 for overhead mounting.**

Section 2G.09 High-Occupancy Vehicle (HOV) Plaque (W16-11P)

Option:

- 01 *In situations where there is a need to warn drivers in an HOV lane of a specific condition, a HOV (W16-11P) plaque (see Figure 2G-4) may be used above a warning sign. The HOV plaque may be used to differentiate a warning sign specific for HOV lanes when the sign is also visible to traffic on the adjacent general-purpose roadway. Among the warning signs that may be possible applications of the HOV plaque are the Advisory Exit Speed, Added Lane, and Merge signs.*
- 02 *The diamond symbol may be used instead of the word message HOV on the W16-11P plaque. When appropriate, the words LANE or ONLY may be used on this plaque.*

Support:

- 03 *Section 2G.08 contains information regarding warning signs that can be mounted on barriers for HOV or other types of preferential lanes.*

Section 2G.10 Preferential Lane Guide Signs – General

Support:

- 01 *Preferential lanes are used on freeways, expressways, and conventional roads. Except as otherwise provided, Sections 2G.10 through 2G.15 apply only to guide signs for preferential lanes on freeways and expressways.*

Guidance:

- 02 *On conventional roads, guide signs applicable only to preferential lanes are ordinarily not needed, but if used they should comply with the provisions for guide signs in Chapter 2D and any principles for Preferential Lane guide signs in Sections 2G.10 through 2G.15 that engineering judgment finds to be appropriate for the conditions.*

Support:

- 03 *Consistency in signs and pavement markings for preferential lanes plays a critical role in building public awareness, understanding, and acceptance, and makes enforcement more effective.*
- 04 *Additional guidance and standards related to the designation, operational considerations, signs, pavement markings, and other considerations for preferential lanes is provided in Sections 2G.03 through 2G.07, and 2G.09, and Chapter 3D.*

Guidance:

- 05 *The appropriate combinations of pavement markings and standard overhead and post-mounted regulatory, warning, and guide signs for a specific preferential lane application should be selected based on an engineering study.*
- 06 *If overhead signs applicable only to a preferential lane are located in approximately the same longitudinal position along the highway as overhead signs applicable only to the general-purpose lanes, the signs for the preferential lane should be separated laterally from the signs for the general-purpose lanes to the maximum extent practical to minimize conflicting information.*
- 07 *The Preferential Lane signs should be designed and located to avoid overloading the road user. Based on the importance of the sign, regulatory signs should be given priority over guide signs. The order of priority of*

guide signs should be Advance Guide, Preferential Lane Entrance Direction, and finally Preferential Lane Exit Destination supplemental guide signs.

Standard:

- 08 **Signs applicable only to a preferential lane shall be distinguished from signs applicable to general-purpose lanes by the inclusion of the applicable symbol(s) and/or word(s).**

Support:

- 09 The symbol and/or word message that appears on a particular guide sign applicable only to a preferential lane will vary based on the specific type of allowed traffic and on other related operational constraints that have been established for a particular lane, such as an HOV lane, a bus lane, or a taxi lane.

Standard:

- 10 **For HOV lanes, the diamond symbol shall appear on each Advance Guide sign, Preferential Lane Entrance Direction sign, and Preferential Lane Entrance Gore sign, as shown in Figures 2G-5 through 2G-7 for the designated entry and exit points for barrier- and buffer-separated geometric configurations and direct access ramps to or from such lanes. The diamond symbol shall not be used with preferential lanes for other types of traffic, such as bus lanes or taxi lanes.**

- 11 **Signing for an HOV lane that is managed by means of varying the occupancy requirement in response to changing conditions shall also comply with these provisions.**

- 12 **The diamond symbol shall be displayed in the legend of each Preferential Lane guide sign at the designated entry and exit points for all types of HOV lanes (including barrier- and buffer-separated, contiguous, and direct access ramps) in order to alert motorists that there is a minimum allowable vehicle occupancy requirement for vehicles to use the HOV lanes. Guide signs shall not display the occupancy requirement for the preferential lane.**

- 13 **A combination of guide and regulatory signs shall be used in advance of and at the initial entry point and all intermediate entry points from general-purpose lanes or facilities to contiguous, barrier-separated, and buffer-separated preferential lanes where access between the preferential and general-purpose lanes is restricted to designated locations. The regulatory signs shall comply with the provisions of Sections 2G.03 through 2G.07.**

- 14 **Regulatory signs alone shall be used in advance of, at the beginning of, and at periodic intervals along contiguous or buffer-separated preferential lanes that provide continuous access between the adjacent general-purpose lanes and the preferential lane (see Figures 2G-2 and 2G-3). The design and placement of the regulatory signs shall comply with the provisions of Sections 2G.03 through 2G.07.**

- 15 **Except as otherwise provided in Sections 2G.10 through 2G.13, guide signs applicable to a preferential lane with a vehicle occupancy requirement shall be distinguished from those applicable to general-purpose lanes by displaying the white diamond symbol on a black background at the left-hand edge of these signs.**

Option:

- 16 When post-mounted guide signs applicable only to a preferential lane are installed on a median barrier with limited lateral clearance to the adjacent travel lanes or shoulders, the guide signs may have a vertical rectangular shape.

Standard:

- 17 **When vertical rectangular shaped guide signs applicable only to a preferential lane are installed on a median barrier, the top portion of the signs shall be comprised of the applicable white symbol or white word message that identifies the type of preferential lane (such as the diamond symbol for an HOV lane) on a black background with a white border, and the bottom portion of the sign shall be comprised of the appropriate guide sign legend on a green background with a white border (see Figures 2G-3, 2G-6, and 2G-7).**

Guidance:

- 18 *Where lateral clearance is limited, such as when a post-mounted Preferential Lane guide sign is installed on a median barrier, the edges of the sign should not project beyond the outer edges of the barrier.*

Option:

- 19 Where lateral clearance is limited, Preferential Lane guide signs that are 72 inches or less in width may be skewed up to 45 degrees in order to fit within the barrier width or may be mounted higher, such that the vertical clearance to the bottom of the sign, light fixture, or its structural support, whichever is lowest, is not less than 14 feet above any portion of the pavement and shoulders.

Advance Guide signs and overhead Exit Direction signs shall be provided in advance of and at the entry point to each freeway-to-freeway preferential lane ramp (see Figure 2G-16).

Guidance:

- 06 *The use of guide signs for preferential lanes at freeway interchanges should comply with the provisions for guide signs established in this Manual.*

Support:

- 07 Guide signs for direct access ramps for preferential lanes at interchanges connecting two freeways are similar to those for a connecting ramp between two freeway facilities.

Section 2G.16 Signs for Priced Managed Lanes – General

Support:

- 01 A priced managed lane is a managed lane that employs tolling or pricing, typically through electronic toll collection, to manage congestion levels and maintain a certain level of service for users of the facility. A priced managed facility typically provides a less congested alternative to adjacent lanes along the same designated route, or to a nearby facility, that experience recurring congestion during peak periods. A priced managed lane might allow non-toll travel by certain vehicles based on occupancy or other criteria. A variety of operational management strategies might be used in conjunction with tolling or pricing.
- 02 The number and combination of operational strategies that are applied to a managed lane to manage congestion or improve efficiency might be practically limited by the amount of information that can be legibly displayed on signs or in signing sequences and still be readily comprehended by road users. Such factors to consider when evaluating alternatives for managed lanes are locations of signs for general-purpose interchanges and for other roadway conditions, the number of intermediate access points between the managed and general-purpose lanes and the need to repeat the operational information, and the distance over which a signing sequence that displays all of the eligibility requirements can be displayed.
- 03 Because managed lanes have the capability to employ a variety of operational strategies on a changing basis, it is not practical to assign a naming convention to such lanes for the purpose of signing based on the specific operational management strategies, as is more readily accomplished with other types of preferential lanes, such as HOV, Bus, or Bike lanes. Instead, the various requirements, restrictions, and eligibility criteria are more appropriately conveyed through a sequence of regulatory and guide signs with a more encompassing designation for the purpose of providing directional information.
- 04 As priced managed lanes become more prevalent as an operational strategy, it will be important to establish a uniform naming convention to distinguish those lanes that are an alternative to travel on adjacent general-purpose lanes on the same designated route to effectively communicate to motorists the range of basic requirements for similar facilities in different regions.

Standard:

- 05 **Priced managed lanes that are adjacent to general-purpose lanes along the same designated route shall be signed using the legend EXPRESS or EXPRESS LANE(S). This provision shall apply when any of the following operational strategies is used for a managed lane:**
- A. General-purpose traffic using the managed lane is charged a fixed or variable toll, but HOV traffic is allowed to travel without being charged a toll on either a full- or part-time basis; or**
 - B. General-purpose traffic using the managed lane is charged a fixed or variable toll, but HOV traffic registered with a local program travels without being charged a toll on either a full- or part-time basis (a transponder or other identifier is typically required of HOVs to indicate registration in conjunction with electronic or visual enforcement and verification of vehicle occupancy).**
- 06 **The legends EXPRESS and EXPRESS LANE(S) shall not be used on signs for entrances to highways on which all lanes are managed and there are no adjacent general-purpose lanes on the same designated route. The legends EXPRESS and EXPRESS LANE(S) shall not be used on signs for a managed ramp connection that provides an alternative to a general-purpose ramp connection (see Figure 2F-7), except where the ramp leads directly to a managed lane as described in Section 2G.14. The legends EXPRESS and EXPRESS LANE(S) shall not be used on signs for open-road tolling lanes that bypass a conventional toll plaza (see Chapter 2F).**
- 07 **Priced managed lanes that are adjacent to general-purpose lanes along the same designated route shall be signed using the legend TOLL LANE(S). This provision shall apply when any of the following operational strategies is used for a managed lane:**
- A. All users of the managed lane are charged a fixed or variable toll; or**

Figure 2G-15. Examples of Guide Signs for Direct HOV Lane Entrance and Exit Ramps

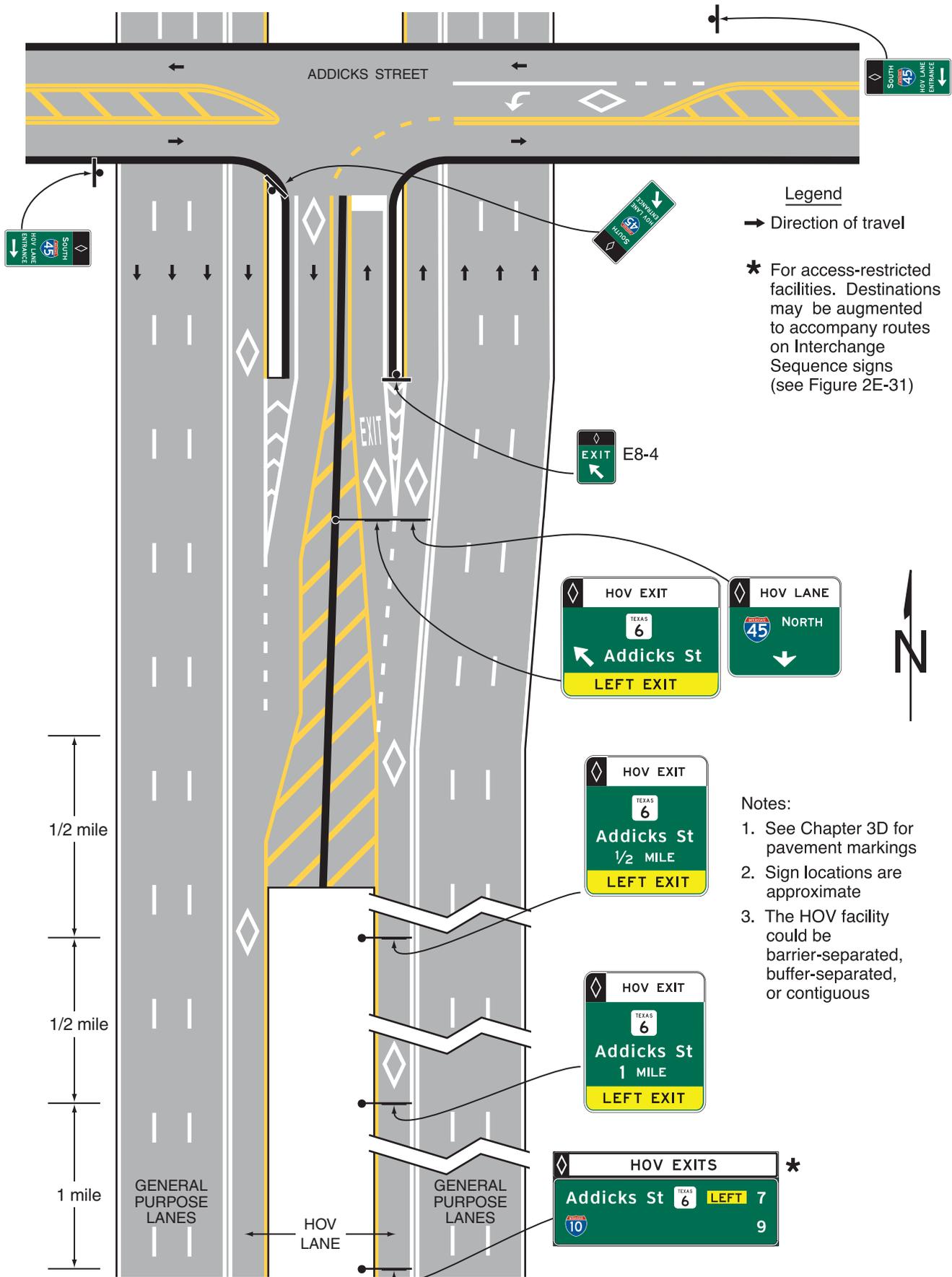
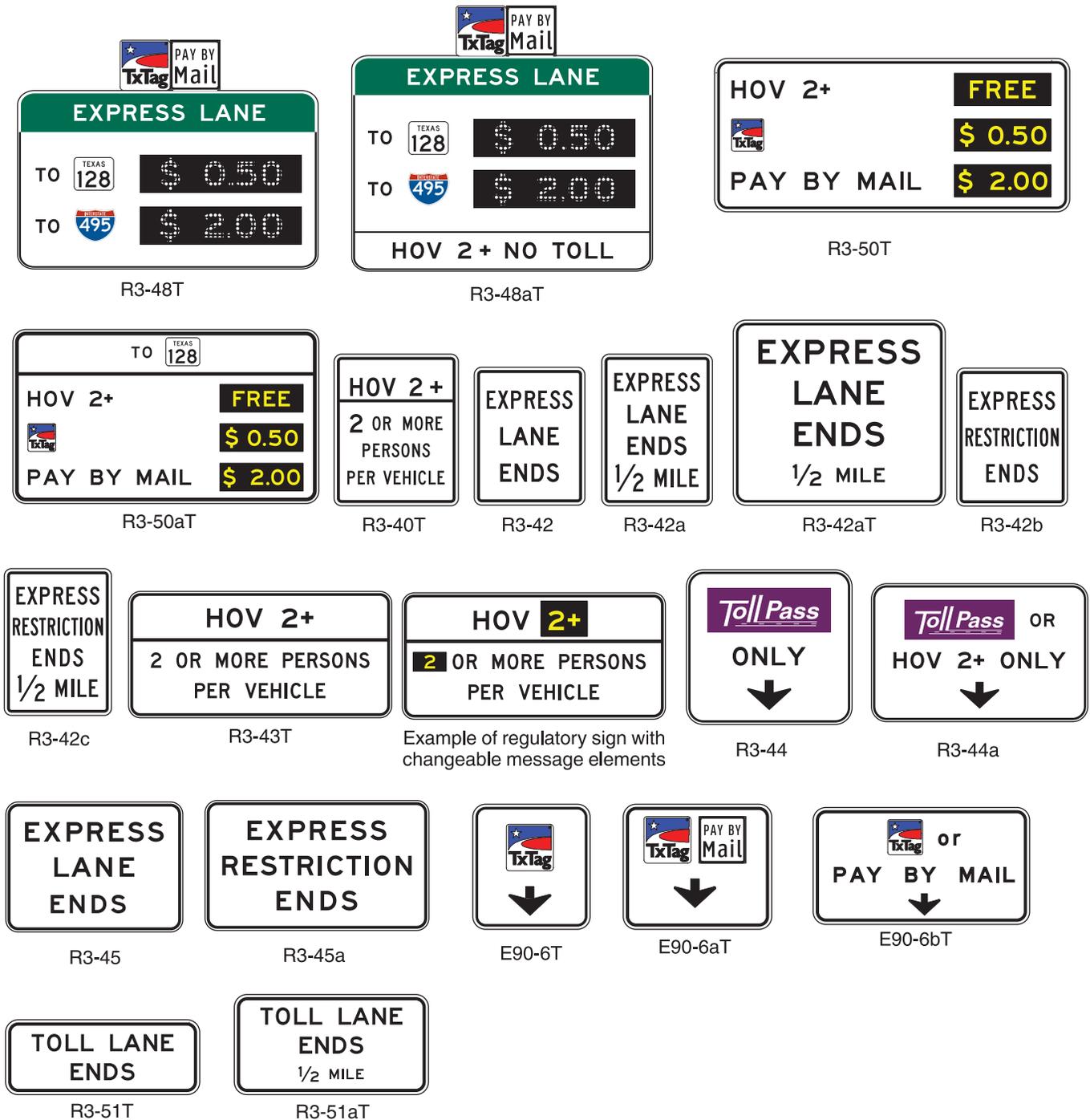


Figure 2G-17. Regulatory Signs for Managed Lanes



Notes:

1. The ETC pictograph shown is an example only. The pictograph for the toll facility's adopted ETC system shall be used.
2. Changeable message sign elements shall be used for the numerals displayed for the variable tolls.

on which all lanes are managed shall follow the general provisions for freeway and expressway guide signs as contained in Chapter 2E as a whole. Guide signs for highways on which all lanes are managed and tolling or pricing is used as a management strategy shall follow the applicable provisions for toll road guide signs as contained in Chapter 2F, in addition to the general provisions of Chapter 2E.

02 If fixed or variable tolls are used as an operational strategy for a managed lane, the guide signs shall comply with the provisions of Sections 2F.03, 2F.04, and 2F.17 regarding the use, size, and placement of ETC-account pictographs.

Support:

- 03 Figure 2G-18 shows examples of Guide signs for entrances to priced managed lanes and other ETC account-only toll facilities that incorporate header panels with ETC account pictographs and regulatory legends.

Guidance:

- 04 *Exit Destination supplemental guide signs, identifying final destination and downstream exit locations accessible from the managed lane (see Figure 2G-19), should be installed in advance of the initial entry points to priced managed lanes. These signs should be located in accordance with the provisions of Paragraph 5 of Section 2G.11.*
- 05 *For managed lanes that are available as an alternative to travel on adjacent general-purpose lanes on the same designated route, changeable message signs indicating the comparative travel times or congestion levels using the managed lanes versus the general-purpose lanes (see Figure 2G-20) should be installed in advance of the initial and intermediate entry points to the managed lanes.*

Option:

- 06 Changeable message signs may also be used on non-managed highways to display comparative travel times or congestion levels for a nearby managed highway.

Standard:

- 07 **Guide signs at the initial and intermediate entry points to a priced managed lane in which all general-purpose passenger vehicles are allowed shall include the legend EXPRESS or EXPRESS LANE(S). The guide signs shall incorporate the pictograph of the ETC account system into a header panel within the guide sign in accordance with Sections 2F.03, 2F.04, and 2F.17. For a priced managed lane that allows non-toll travel by HOV traffic without registration in a local program, the header panel shall be modified to a regulatory format to display both the pictograph of the ETC account system and the minimum occupancy requirement for non-toll travel with a black legend on a white background (see Figure 2G-19).**
- 08 **Guide signs at the initial and intermediate entry points to a managed lane that allows only HOV traffic with either a fixed or variable occupancy requirement shall follow the provisions of Sections 2G.10 through 2G.12 and 2G.14.**

Support:

- 09 Figures 2G-21T through 2G-24T show examples of guide signs for various configurations of initial and intermediate entrances to a priced managed lane.

Figure 2G-18. Examples of Guide Signs for Entrances to Priced Managed Lanes

A - ENTRANCE TO A PRICED MANAGED LANE FROM A GENERAL PURPOSE LANE



B - DIRECT ENTRANCE TO A PRICED MANAGED LANE FROM A CROSSROAD



Note: 1. The ETC pictographs shown are examples only. The pictograph for the toll facility's adopted ETC system shall be used.
 2. The examples shown are for facilities on which registration in a toll account program is required for toll payments.

Figure 2G-21TA. Example of Signing for the Entrance to an Entrance Restricted Priced Manage Lane (Toll Lane)

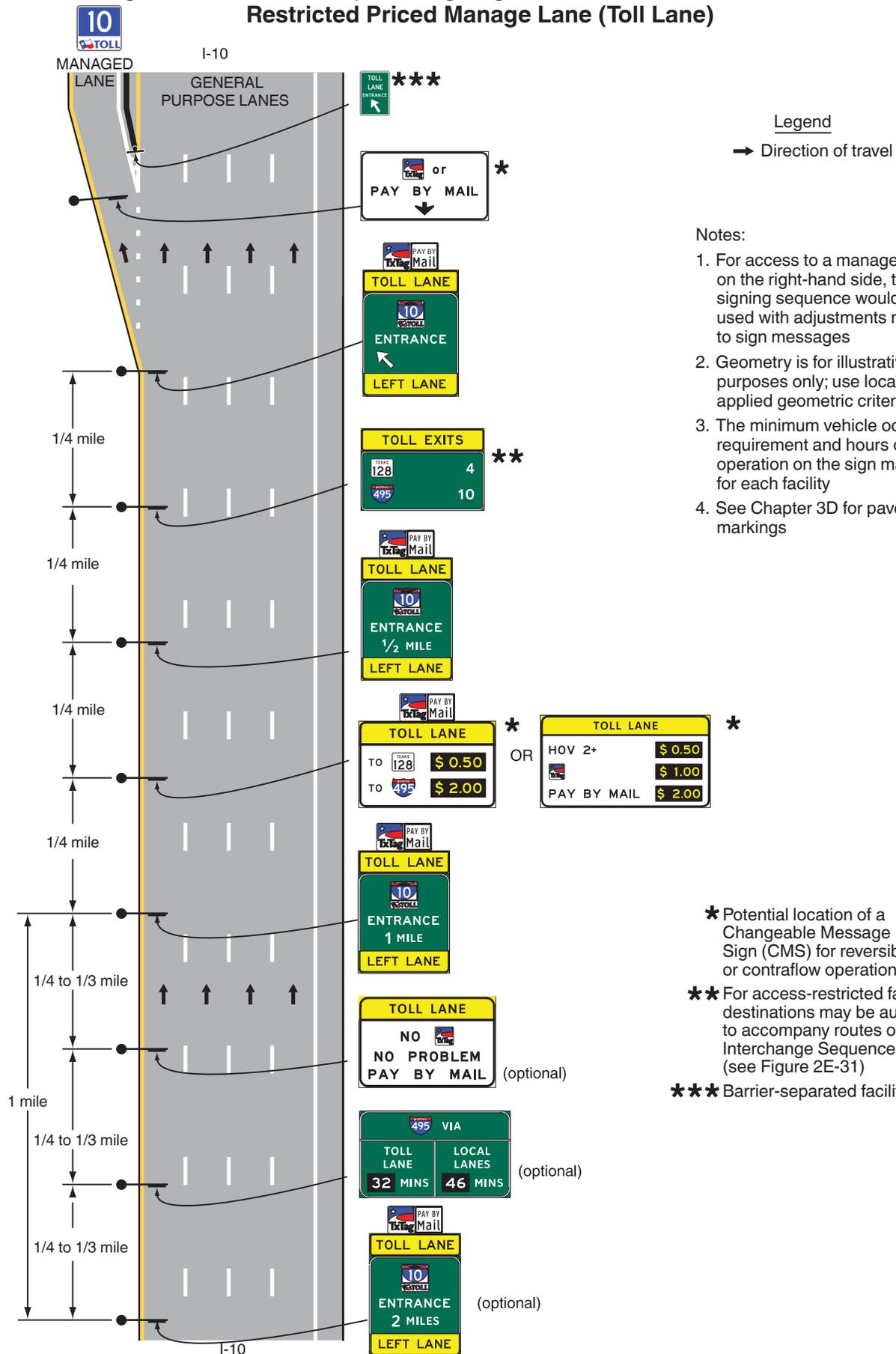
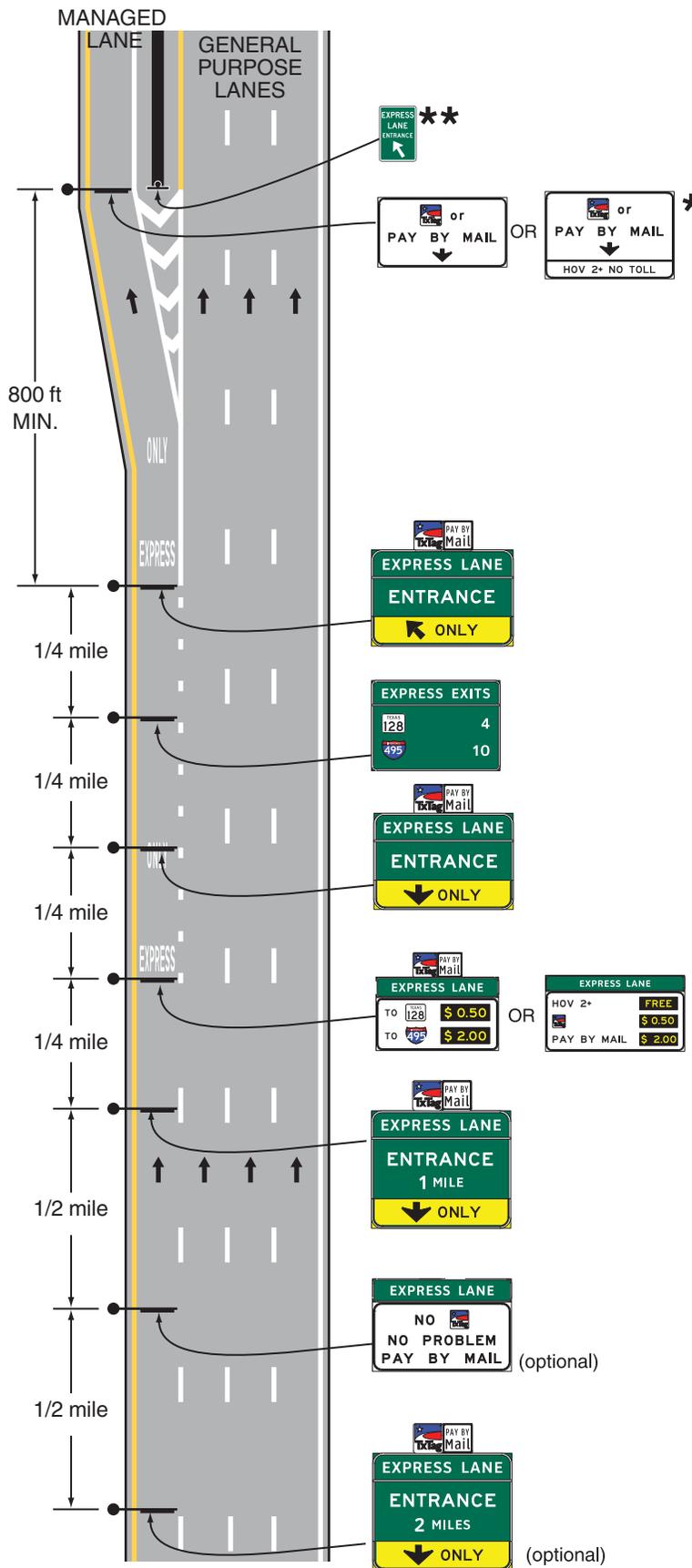


Figure 2G-22T. Example of Signing for the Entrance to an Access-Restricted Priced Managed Lane Where a General-Purpose Lane Becomes the Managed Lane



Legend

→ Direction of travel

Notes:

1. For access to a managed lane on the right-hand side, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
4. See Chapter 3D for pavement markings
5. See Figure 2G-21T for additional signing

* Potential location of a Changeable Message Sign (CMS) for reversible or contraflow operations

** Barrier-separated facilities only

Figure 2G-24TA. Example of Signing for the Intermediate Entry to, Egress from, and End of Access-Restricted Priced Toll Lanes

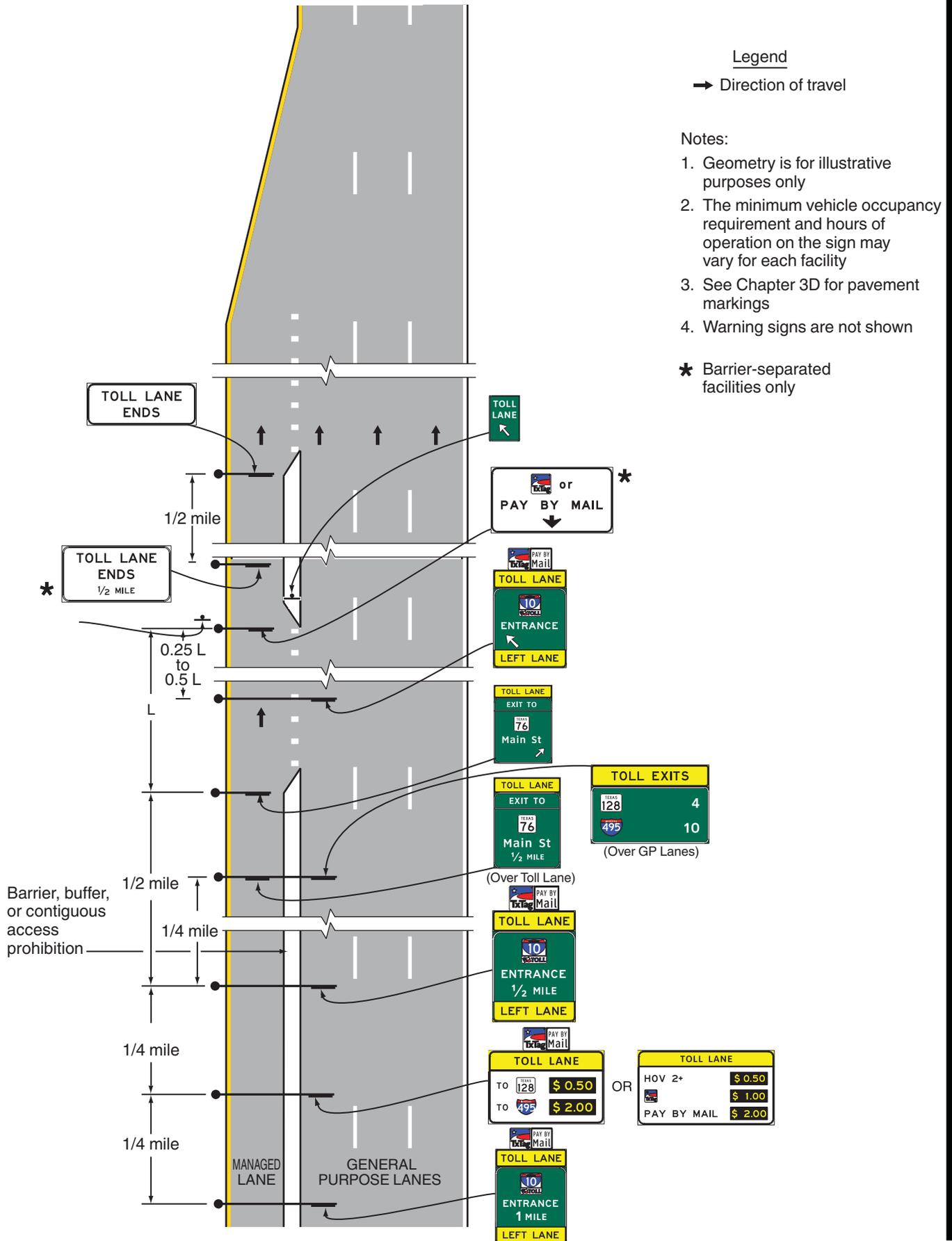


Figure 2G-25. Examples of Guide Signs for an Intermediate Egress from a Barrier- or Buffer-Separated Managed Lane

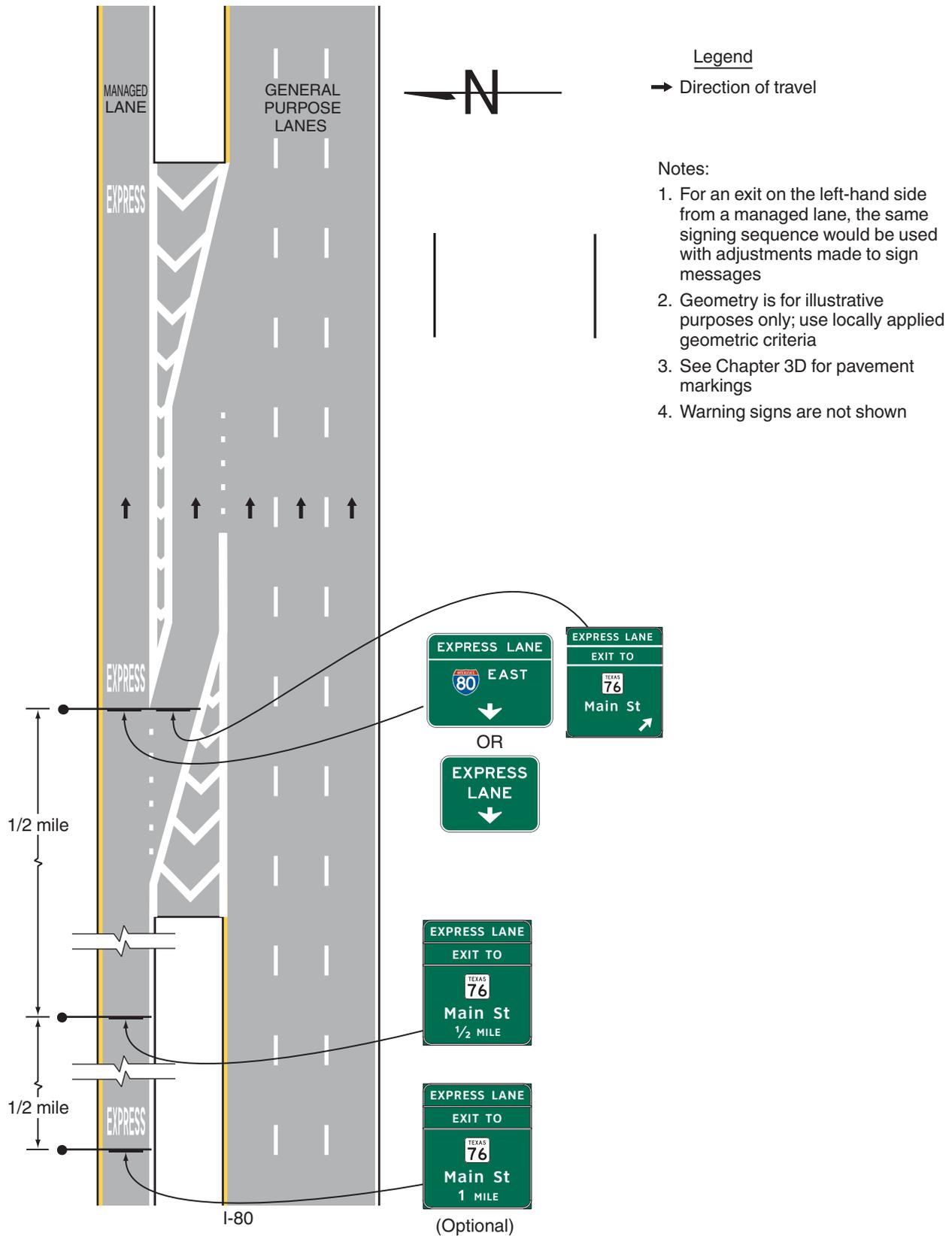


Figure 2G-26T. Examples of Guide Signs for Direct Managed Lane Entrance and Exit Ramps

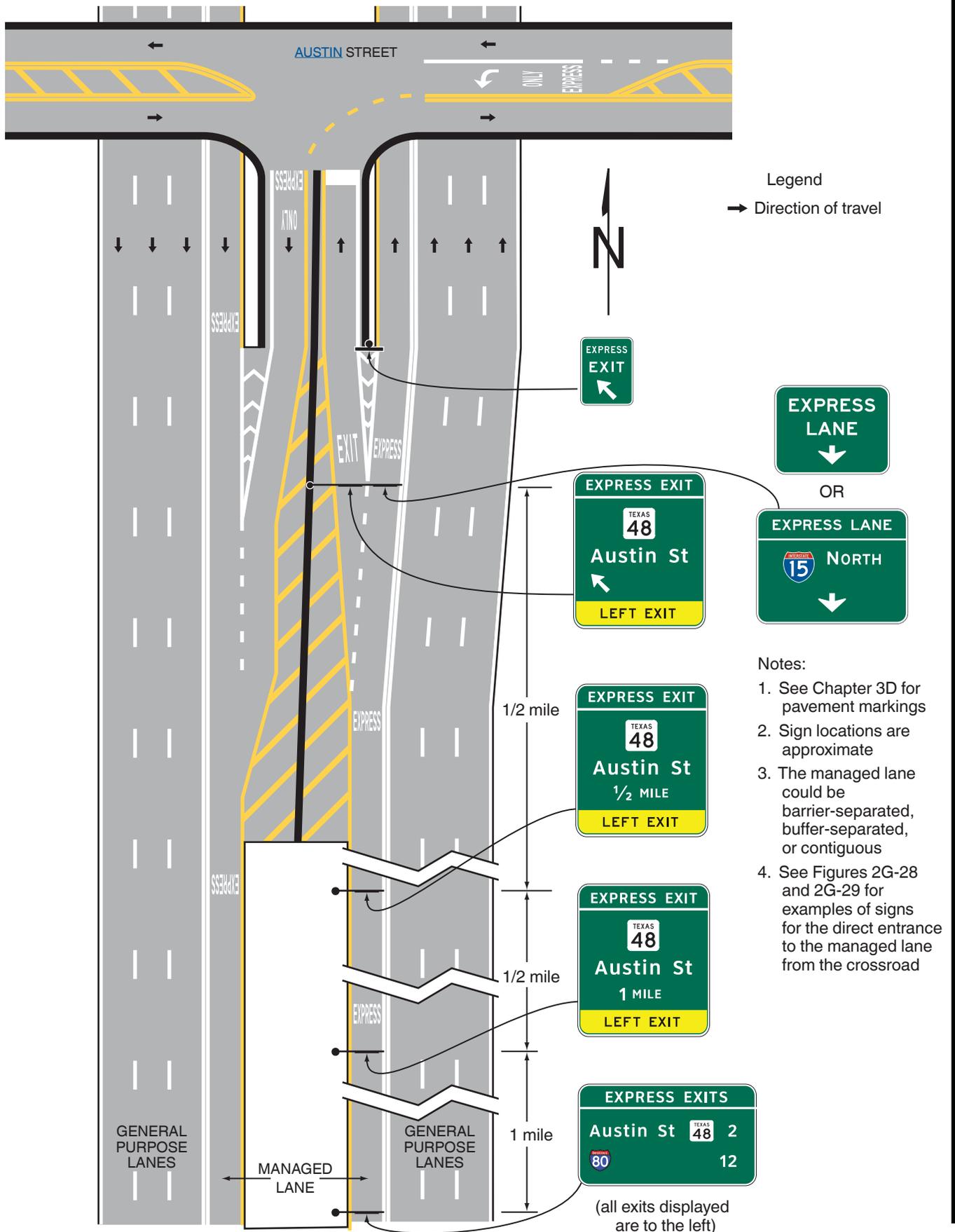


Figure 2G-27. Examples of Guide Signs for a Direct Access Ramp to Managed Lane

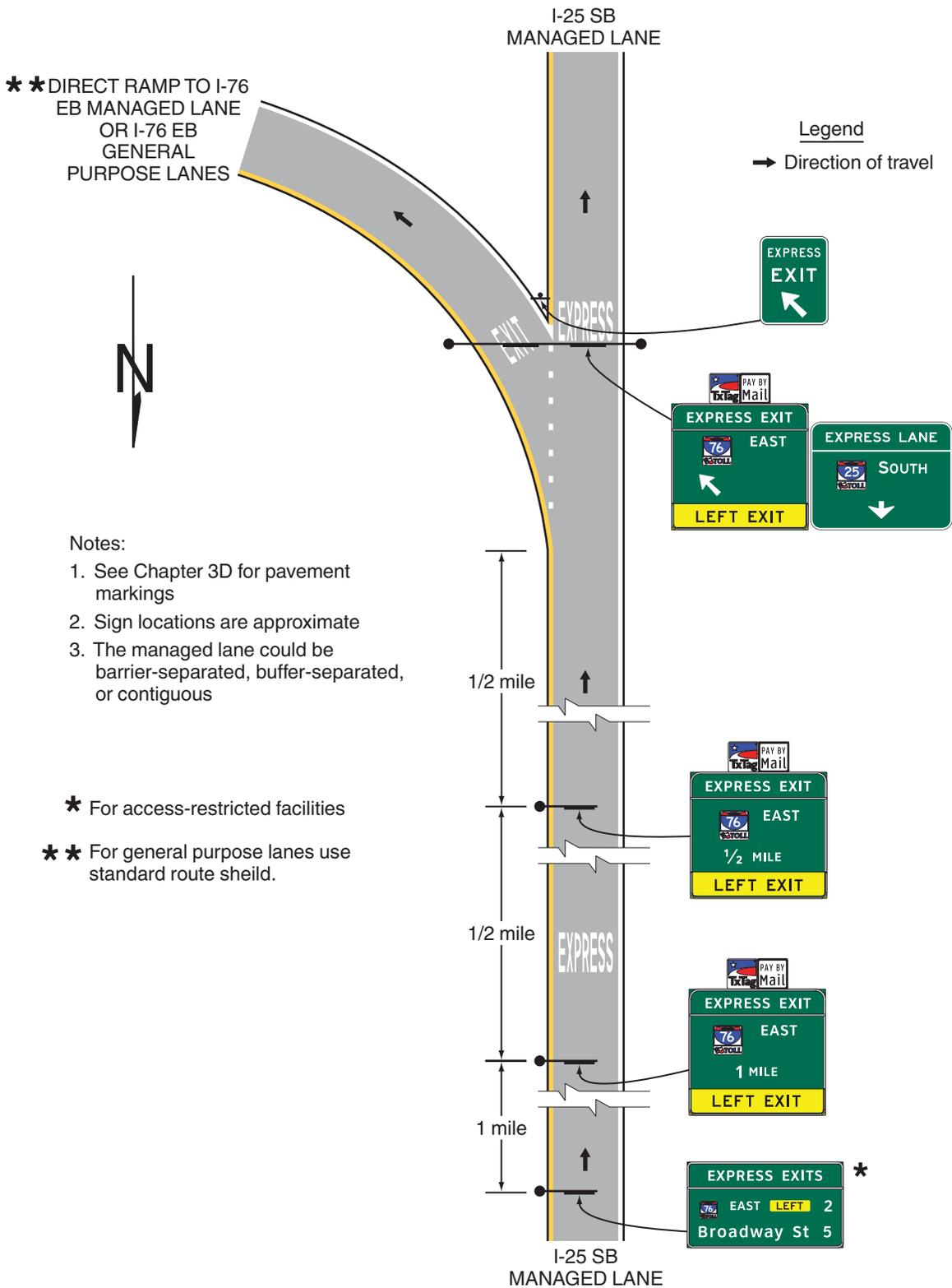


Figure 2G-27TA. Examples of Guide Signs for a Direct Access Ramp to General Purpose Lanes

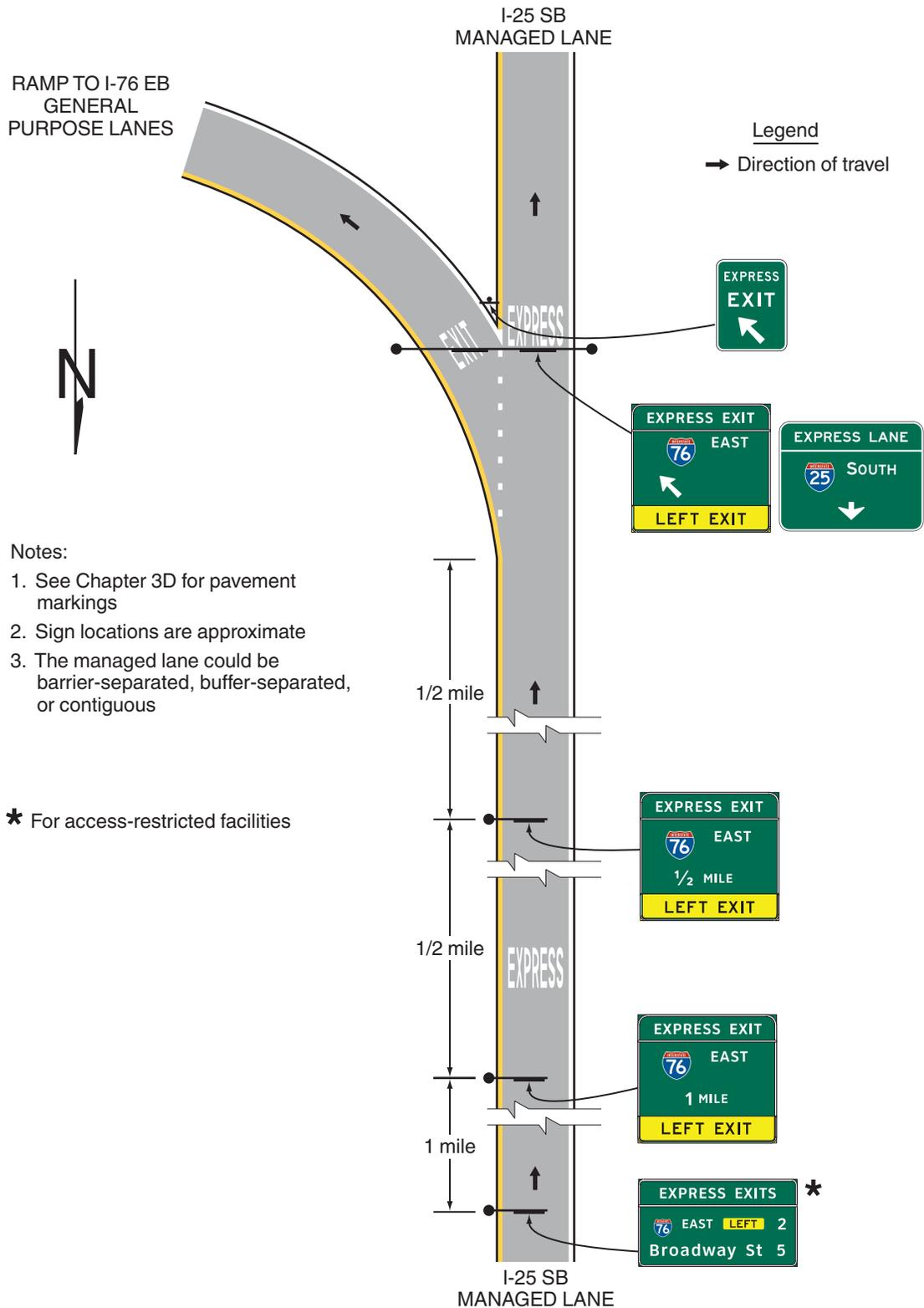
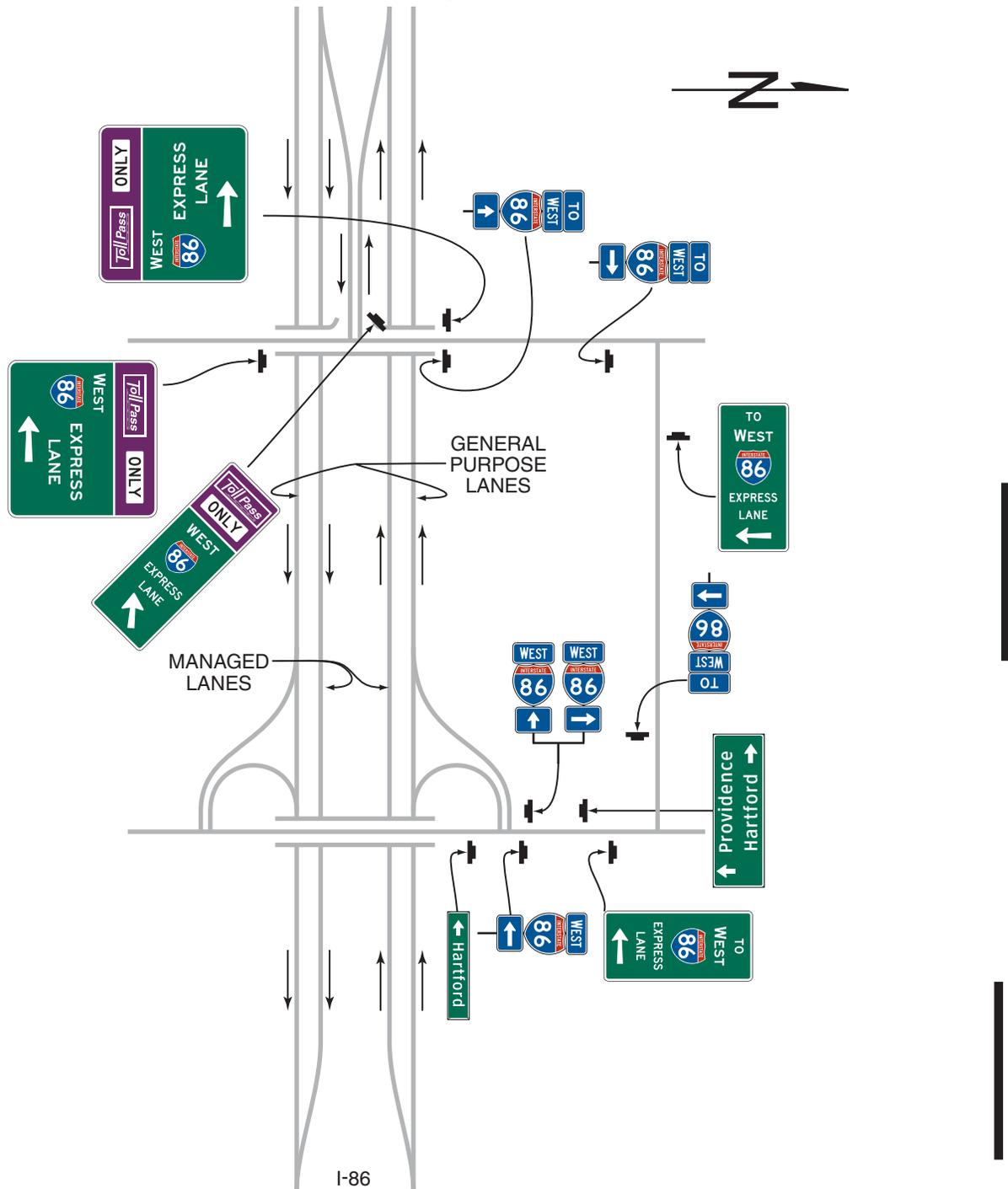


Figure 2G-28. Examples of Guide Signs for a Direct Entrance Ramp to a Priced Managed Lane and Trailblazing to a Nearby Entrance to the General-Purpose Lanes



CHAPTER 2I. GENERAL SERVICE SIGNS

Section 2I.01 Sizes of General Service Signs

Standard:

- 01 Except as provided in Section 2A.11, the sizes of General Service signs that have a standardized design shall be as shown in Table 2I-1.

Support:

- 02 Section 2A.11 contains information regarding the applicability of the various columns in Table 2I-1.

Option:

- 03 Signs larger than those shown in Table 2I-1 may be used (see Section 2A.11).

Table 2I-1. General Service Sign and Plaque Sizes (Sheet 1 of 2)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway
Rest Area 1 Miles Accessible	D5-1aT	2I-05	36 x 36	—
Rest Area Accessible (with horizontal arrow)	D5-2aT	2I-05	36 x 36	—
Rest Area (with horizontal arrow)	D5-5	2I.05	42 x 48*	—
Telephone	D9-1	2I.02	24 x 24	30 x 30
Hospital	D9-2	2I.02	24 x 24	30 x 30
Camping	D9-3	2I.02	24 x 24	30 x 30
Trailer Camping	D9-3a	2I.02	24 x 24	30 x 30
Litter Container	D9-4	2I.02	24 x 30	36 x 48
Handicapped	D9-6	2I.02	24 x 24	30 x 30
Van Accessible (plaque)	D9-6P	2I.02	18 x 9	—
Gas	D9-7	2I.02	24 x 24	30 x 30
Food	D9-8	2I.02	24 x 24	30 x 30
Lodging	D9-9	2I.02	24 x 24	30 x 30
Tourist Information	D9-10	2I.02	24 x 24	30 x 30
Diesel Fuel	D9-11	2I.02	24 x 24	30 x 30
Alternative Fuel - Compressed Natural Gas	D9-11a	2I.02	24 x 24	30 x 30
Electric Vehicle Charging	D9-11b	2I.02	24 x 24	30 x 30
Electric Vehicle Charging (plaque)	D9-11bP	2I.02	24 x 18	30 x 24
Alternative Fuel - Ethanol	D9-11c	2I.02	24 x 24	30 x 30
RV Sanitary Station	D9-12	2I.02	24 x 24	30 x 30
Emergency Medical Services	D9-13	2I.02	24 x 24	30 x 30
Hospital (plaque)	D9-13aP	2I.02	24 x 12	30 x 12
Emergency Medical Care (plaque)	D9-13cP	2I.02	24 x 18	30 x 24
Trauma Center (plaque)	D9-13dP	2I.02	24 x 12	30 x 15
Police	D9-14	2I.02	24 x 24	30 x 30
Propane Gas	D9-15	2I.02	24 x 24	30 x 30
Truck Parking	D9-16	2I.02	24 x 24	30 x 30
Next Services XX Miles (plaque)	D9-17P	2I.02	102 x 30	156 x 30
General Services (up to 6 symbols)	D9-18	2I.03	—	Varies
General Services	D9-18a	2I.03	—	Varies
General Services (up to 6 symbols) with Action or Exit Information	D9-18b	2I.03	Varies	Varies
General Services with Action or Exit Information	D9-18c	2I.03	Varies**	Varies**
Pharmacy	D9-20	2I.02	24 x 24	30 x 30
24-Hour (plaque)	D9-20aP	2I.02	24 x 12	30 x 12
Telecommunication Device for the Deaf	D9-21	2I.05	24 x 24	30 x 30
Wireless Internet	D9-22	2I.05	24 x 24	30 x 30
Carpool Information	D12-2	2I.11	60 x 42	96 x 66
Channel 9 Monitored	D12-3	2I.02	84 x 48	132 x 84
Travel Info Call 511 (pictograph)	D12-5	2I.10	48 x 60	66 x 72

Table 2I-1. General Service Sign and Plaque Sizes (Sheet 2 of 2)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway
Travel Info Call 511	D12-5a	2I.10	48 x 36	66 x 48
Rest Area 1 Mile	E21-1T	2I.05	—	108 x 60*
Rest Area Next Right	E21-2T	2I.05	—	120 x 60*
Rest Area Gore	E21-3T	2I.05	78 x 78*	78 x 78*
Next Rest Area XX Miles	E21-7T	2I.05	—	108 x 36*
Rest Area Tourist Info Center 1 Mile	E21-9T	2I.08	—	144 x 102*
Rest Area Tourist Info Center Next Right	E21-10T	2I.08	—	144 x 102*
Rest Area Tourist Info Center (with arrow)	E21-11T	2I.08	—	120 x 102*
Rest Area Texas Travel Center (with arrow)	E21-12T	2I.08	—	138 x 102*
Rest Area Texas Travel Center 2 Miles	E21-13T	2I.08	—	168 x 102*
Rest Area Texas Travel Center Next Right	E21-14T	2I.08	—	168 x 102*

* The size shown is for a sign with a REST AREA and/or TOURIST INFO CENTER legend. The size should be appropriately adjusted if an alternate legend is used.

** The size shown is for a sign with four lines of services. The size should be appropriately adjusted depending on the amount of legend displayed.

Notes: 1. Larger signs may be used when appropriate
 2. Dimensions in inches are shown as width x height
 3. Where two sizes are shown, the larger size is for freeways (F) and the smaller size is for expressways (E)

Section 2I.02 General Service Signs for Conventional Roads

Support:

- 01 On conventional roads, commercial services such as gas, food, and lodging generally are within sight and are available to the road user at reasonably frequent intervals along the route. Consequently, on this class of road there usually is no need for special signs calling attention to these services. Moreover, General Service signing is usually not required in urban areas except for hospitals, law enforcement assistance, tourist information centers, and camping.

Option:

- 02 General Service signs (see Figure 2I-1) may be used where such services are infrequent and are found only on an intersecting highway or crossroad.

Standard:

- 03 **All General Service signs and supplemental sign panels shall have white letters, symbols, arrows, and borders on a blue background.**

Guidance:

- 04 *General Service signs should be installed at a suitable distance in advance of the turn-off point or intersecting highway.*

Standard:

- 05 **General Service signs, if used at intersections, shall be accompanied by a directional message.**

Option:

- 06 The Advance Turn (M5 series) or Directional Arrow (M6 series) auxiliary signs with white arrows on blue backgrounds as shown in Figure 2I-1 may be used with General Service symbol signs to create a General Service Directional Assembly.

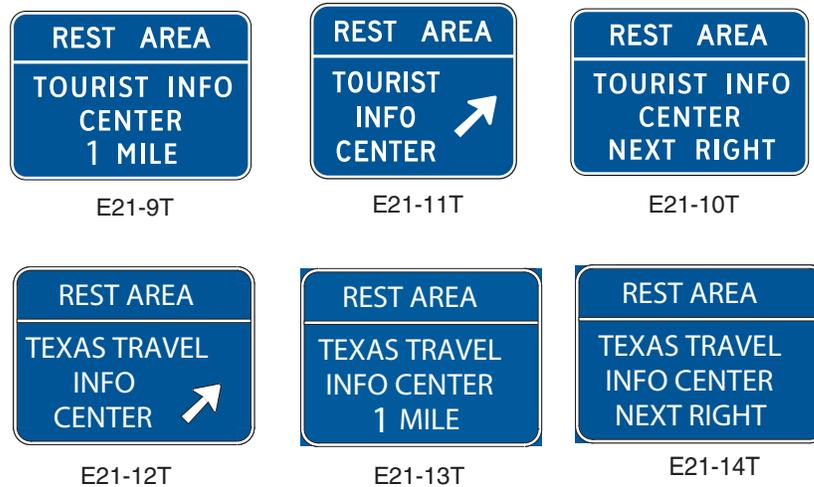
- 07 The General Service sign legends may be either symbols or word messages.

Standard:

- 08 **Symbols and word message General Service legends shall not be intermixed on the same sign. The Pharmacy (D9-20) sign shall only be used to indicate the availability of a pharmacy that is open, with a State-licensed pharmacist present and on duty, 24 hours per day, 7 days per week, and that is located within 3 miles of an interchange on the Federal-aid system. The D9-20 sign shall have a 24 HR (D9-20aP) plaque mounted below it.**

Support:

- 09 Formats for displaying different combinations of these services are described in Section 2I.03.

Figure 2I-7. Examples of Tourist Information and Welcome Center Signs

Note: Alternate legends may be substituted for the TOURIST INFO CENTER legend, such as WELCOME CENTER and (State Name) WELCOME CENTER.

Guidance:

- 05 For freeway or expressway rest area locations that also serve as tourist information or welcome centers, the following signing criteria should be used:
- The locations for tourist information and welcome center Advance Guide, Exit Direction, and Exit Gore signs should meet the General Service signing requirements described in Section 2I.03.
 - If the signing for the tourist information or welcome center is to be accomplished in conjunction with the initial signing for the rest areas, the message on the Advance Guide (E21-9T) sign should be REST AREA, TOURIST INFO CENTER, XX MILES or REST AREA, TEXAS TRAVEL INFO CENTER XX MILES. On the Exit Direction (E21-14T or E21-10T) sign the message should be REST AREA, TOURIST INFO CENTER with a diagonally upward-pointing directional arrow (or NEXT RIGHT), or REST AREA, TEXAS TRAVEL INFO CENTER with a diagonally upward-pointing directional arrow (or NEXT RIGHT).
 - If the initial rest area Advance Guide and Exit Direction signing is in place, these signs should include, on supplemental signs, the legend TOURIST INFO CENTER or TEXAS TRAVEL INFO CENTER.
 - The Exit Gore sign should contain only the legend REST AREA with the arrow and should not be supplemented with any legend pertaining to the tourist information center or welcome center.

Option:

- 06 As an alternative, the Tourist Information (D9-10) sign (see Figure 2I-1) may be appended to the guide signs for the exit that provides access to the tourist information center. As a second alternative, the Tourist Information sign may be combined with General Service signing.

Section 2I.09 ~~Radio Information Signing~~ DELETED

Section 2I.10 TRAVEL INFO CALL 511 Signs (D12-5 and D12-5a)

Option:

- 01 A TRAVEL INFO CALL 511 (D12-5) sign (see Figure 2I-8) may be installed if a 511 travel information services telephone number is available to road users for obtaining traffic, public transportation, weather, construction, or road condition information.
- 02 The pictograph of the transportation agency or the travel information service or program that is providing the travel information may be incorporated within the D12-5 sign either above or below the TRAVEL INFO CALL 511 legend.

Standard:

- 03 **The logo of a commercial entity shall not be incorporated within the TRAVEL INFO CALL 511 sign.**

- 04 **The TRAVEL INFO CALL 511 sign shall have a white legend and border on a blue background.**

Guidance:

- 05 *If the pictograph of the transportation agency or the travel information service or program is used, the pictograph's maximum height should not exceed two times the letter height used in the legend of the sign.*

Section 2I.11 Carpool and Ridesharing Signing

Option:

- 01 In areas having carpool matching services, Carpool Information (D12-2) signs (see Figure 2I-8) may be provided adjacent to highways with preferential lanes or along any other highway.
- 02 Carpool Information signs may include an Internet domain name or telephone number of more than four characters within the legend.

Guidance:

- 03 *Because this is an information sign related to road user services, the Carpool Information sign should have a white legend and border on a blue background.*

Standard:

- 04 **If a local transit pictograph or carpool symbol is incorporated into the Carpool Information sign, the maximum vertical dimension of the logo or symbol shall not exceed 18 inches.**

Figure 2I-8. Radio, Telephone, and Carpool Information Signs



D12-2



D12-3



D12-5*



D12-5a

* The pictograph of the transportation agency or the travel information service or program may be used in place of the 511 pictograph (see Section 2I.10)

Table 2M-1. Category Chart for Recreational and Cultural Interest Area Symbols

General	
Bear Viewing Area	RS-012
Bus Stop	RS-031
Campfires *	RS-042
Cans or Bottles *	RS-101
Cultural Interest Area	RS-142
Dam	RS-009
Deer Viewing Area	RS-011
Falling Rocks *	RS-008
Fire Extinguisher *	RS-090
Lighthouse	RS-007
Lookout Tower	RS-006
Nature Study Area	RS-141
Pets on Leash *	RS-017
Pick-Up Trucks	RS-140
Point of Interest	RS-080
Radios *	RS-103
Rattlesnakes *	RS-099
Recycling *	RS-200
Sea Plane	RS-115
Smoking *	RS-002
Snack Bar *	RS-102
Stay on Trail *	RS-123
Strollers *	RS-111
Tunnel	RS-005
Viewing Area	RS-036
Walk on Boardwalk *	RS-122
Wood Gathering *	RS-120

Accommodations	
Baby Changing Station (Men's Room)	RS-137
Baby Changing Station (Women's Room)	RS-138
Men's Restroom	RS-021
Parking	RS-034
Recreational Vehicle Site	RS-104
Restrooms	RS-022
Sleeping Shelter *	RS-037
Trailer Site	RS-040
Walk-In Camp	RS-148
Women's Restroom	RS-023

Services	
Drinking Water	RS-013
Electrical Hook-Up	RS-150
Firewood Cutting *	RS-112
First Aid	RS-024
Grocery Store	RS-020
Kennel	RS-045
Laundromat	RS-085
Litter Receptacle	RS-086
Lockers/Storage *	RS-030
Mechanic	RS-027
Picnic Shelter	RS-039
Picnic Site	RS-044
Post Office	RS-026
Radiator Water	RS-124
Ranger Station	RS-015
Sanitary Station	RS-041
Showers *	RS-035
Stable	RS-073
Theater	RS-109
Trail Shelter *	RS-043
Tramway	RS-071
Trash Dumpster	RS-091

Land Recreation	
All-Terrain Trail	RS-095
Amphitheater	RS-070
Archery	RS-116
Baseball *	RS-096
Climbing *	RS-082
Corral	RS-149
Driving Tour	RS-113
Exercise/Fitness	RS-097
Golfing *	RS-128
Hang Gliding	RS-126
Hiking Trail	RS-068
Horse Trail	RS-064
In-Line Skating	RS-125
Interpretive Trail	RS-114
Off-Road Vehicle Trail	RS-067
Rock Collecting *	RS-083
Skateboarding *	RS-098
Spelunking/Caves	RS-084
Technical Rock Climbing	RS-081
Tennis	RS-129
Wildlife Viewing	RS-076

Water Recreation	
Beach	RS-145
Boat Motor	RS-147
Boat Ramp	RS-054
Canoeing	RS-079
Diving	RS-062
Fish Cleaning *	RS-093
Fish Hatchery	RS-010
Fish Ladder *	RS-089
Fishing Area	RS-063
Fishing Pier	RS-119
Hand Launch/Small Boat Launch	RS-117
Jet Ski/Personal Watercraft	RS-121
Kayaking	RS-118
Lifejackets *	RS-094
Marina	RS-053
Motorboating	RS-055
Rafting	RS-146
Rowboating	RS-057
Sailing	RS-056
Scuba Diving	RS-060
Seal Viewing	RS-106
Surfing	RS-059
Swimming	RS-061
Tour Boat	RS-087
Wading	RS-088
Waterskiing	RS-058
Whale Viewing	RS-107
Wind Surfing	RS-108

Winter Recreation	
Chair Lift/Ski Lift	RS-105
Cross Country Skiing	RS-046
Dog Sledding	RS-143
Downhill Skiing	RS-047
Ice Fishing	RS-092
Ice Skating	RS-050
Ski Jumping	RS-048
Sledding	RS-049
Snow Tubing	RS-144
Snowboarding	RS-127
Snowmobiling	RS-052
Snowshoeing	RS-078
Winter Recreational Area	RS-077

* For non-road use only

Table 2M-2T. Traffic Generator Criteria

	Population Range	Over 250,000	50,000-250,000	15,000-50,000	Under 15,000
Type of Generator	Specific Criteria	Major Metropolitan Areas	Urban Areas	Suburban and Rural Areas	Rural City
Airports (Publicly Owned)	Number of Regularly Scheduled Movements (One Way)	15 daily	10 daily	5 daily	2 daily
	Maximum distance from intersecting highway	5 miles	10 miles	10 miles	10 miles
Airports TASP 1,3	Maximum distance from intersecting highway	5 miles	10 miles	10 miles	10 miles
Colleges Universities (Course work must consist predominately of on site classroom instruction)	Off street parking (Minimum)	500	400	200	100
	Maximum Distance from intersecting highway	3 miles	4 miles	5 miles	5 miles
Hospitals	See Service Signing Sections 2I-02 & 2I.03				
Recreational and Cultural Interest Areas 2	Facilities open to general public. Minimum annual attendance.	100,000 ³ (300,000) ⁴	50,000 ³ (250,000) ⁴	25,000 ³ (100,000) ⁴	10,000 ³ (50,000) ⁴
	Maximum distance from highway.	5 miles	5 miles	5 miles	5 miles
Government Facilities (Must be open for public access to receive service)	State or Federal. Maximum distance from highway	1/2 mile	1 mile	1 mile	2 miles
City/ Downtown Signing	See Sections 2E.41A & 2E.42	Eligible cities have the option of a "Downtown" sign or a "Next-Exits" sign.			
Parking, Park & Ride Terminal, and Rail Terminal Facilities	Facilities shall be directly related to the operation of a multimodal transportation system. This includes parking for carpooling, mass transit and rail terminal access. Max. distance from highway.	3 miles	3 miles	1 mile	1 mile
	Minimum number of parking spaces.	200	100	100	100
Cemetery 3	Maximum distance from highway	1/2 mile	1 mile	1 mile	2 miles

NOTES:

1. Listed as approved in the Texas Airport System Plan (TASP).
2. State and National Parks may be signed from the highway nearest the park regardless of annual attendance.
3. Applies to Conventional roads.
4. Applies to Freeways and Expressways.

Section 2M.05 Symbol Sign Sizes*Guidance:*

- 01 *Recreational and cultural interest area symbol signs should be 24 x 24 inches. Where greater visibility or emphasis is needed, larger sizes should be used. Symbol sign enlargements should be in 6-inch increments.*
- 02 *Recreational and cultural interest area symbol signs should **not** be used on guide signs on freeways or expressways.*

Option:

- 03 *A smaller size of 18 x 18 inches may be used on low-speed, low-volume roadways and on non-road applications.*

Figure 2M-5. Recreational and Cultural Interest Area Symbol Signs for General Applications



Figure 2M-6. Recreational and Cultural Interest Area Symbol Signs for Accommodations

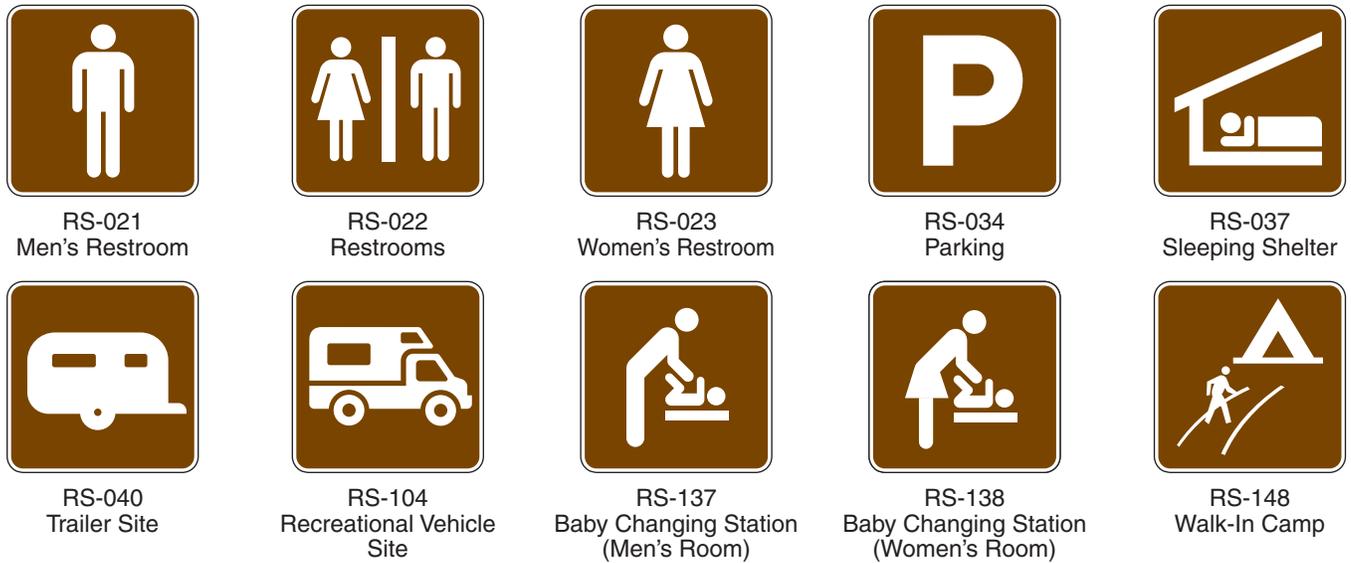


Figure 2M-7. Recreational and Cultural Interest Area Symbol Signs for Services



Section 2M.11 Historical Marker Guide Signs

Support:

- 01 Historical marker guide (D7-6aT and D7-7aT) signs (see Figure 2M-11T) are used to provide advance and directional guidance for official historical marker locations as designated by the Texas Historical Commission.

Guidance:

- 02 *The design of the historical marker guide sign should be as shown in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).*

Support:

- 03 As part of a statewide identification and reference system, the Texas Historical Commission has assigned numbers to all historical markers referred to as Atlas number.

Guidance:

- 04 *The Atlas number should be displayed in conjunction with the historical marker advance and directional guide signs (see Figure 2M-11T).*

Figure 2M-11T. Historical Marker Guide Signs



CHAPTER 2N. EMERGENCY MANAGEMENT SIGNING

Section 2N.01 Emergency Management

Guidance:

01 *Contingency planning for an emergency evacuation should be considered by all State and local jurisdictions and should consider the use of all applicable roadways.*

02 *In the event of a disaster where highways that cannot be used will be closed, a successful contingency plan should account for the following elements: a controlled operation of certain designated highways, the establishment of traffic operations for the expediting of essential traffic, and the provision of emergency centers for civilian aid.*

Section 2N.02 Design of Emergency Management Signs

Standard:

01 **Emergency Management signs shall be used to guide and control highway traffic during an emergency.**

02 **Emergency Management signs shall not permanently displace any of the standard signs that are normally applicable.**

03 **Advance planning for transportation operations' emergencies shall be the responsibility of State and local authorities. The Federal Government shall provide guidance to the States as necessitated by changing circumstances.**

04 **Except as provided in Section 2A.11, the sizes for Emergency Management signs shall be as shown in Table 2N-1.**

Support:

05 Section 2A.11 contains information regarding the applicability of the various columns in Table 2N-1.

Option:

06 Signs larger than those shown in Table 2N-1 may be used (see Section 2A.11).

Guidance:

07 *As conditions permit, the Emergency Management signs should be replaced or augmented by standard signs.*

08 *The background of Emergency Management signs should be retroreflective.*

09 *Because Emergency Management signs might be needed in large numbers for temporary use during an emergency, consideration should be given to their fabrication from any light and economical material that can serve through the emergency period.*

Option:

10 Any Emergency Management sign that is used to mark an area that is contaminated by biological or chemical warfare agents or radioactive fallout may be accompanied by the standard symbol that is illustrated in the upper left corner of the EM-7c and EM-7d signs in Figure 2N-1.

Section 2N.03 Evacuation Route Signs (EM-1 and EM-1aT)

Standard:

01 **The Evacuation Route (EM-1 and EM-1aT) signs shall display a blue circular symbol on a white square sign without a border as shown in Figure 2N-1. The EM-1 sign shall include a white directional arrow (except as provided in Paragraph 3) and a white legend EVACUATION ROUTE within the blue circular symbol. The EM-1aT sign shall include a white EVACUATION ROUTE legend and the hurricane symbol within the blue circular symbol. The EM-1 and EM-1aT signs shall be retroreflective.**

02 **An Advance Turn Arrow (M5 series) or Directional Arrow (M6 series) auxiliary sign as shown in Figure 2D-5, but with a white arrow on a blue background instead of a black arrow on a white background, shall be installed below the EM-1aT sign.**

Option:

03 Instead of including a directional arrow within the blue circular symbol on the EM-1 sign, an Advance Turn Arrow (M5 series) or Directional Arrow (M6 series) auxiliary sign as shown in Figure 2D-5, but with a white arrow on a blue background instead of a black arrow on a white background, may be installed below the EM-1 sign.

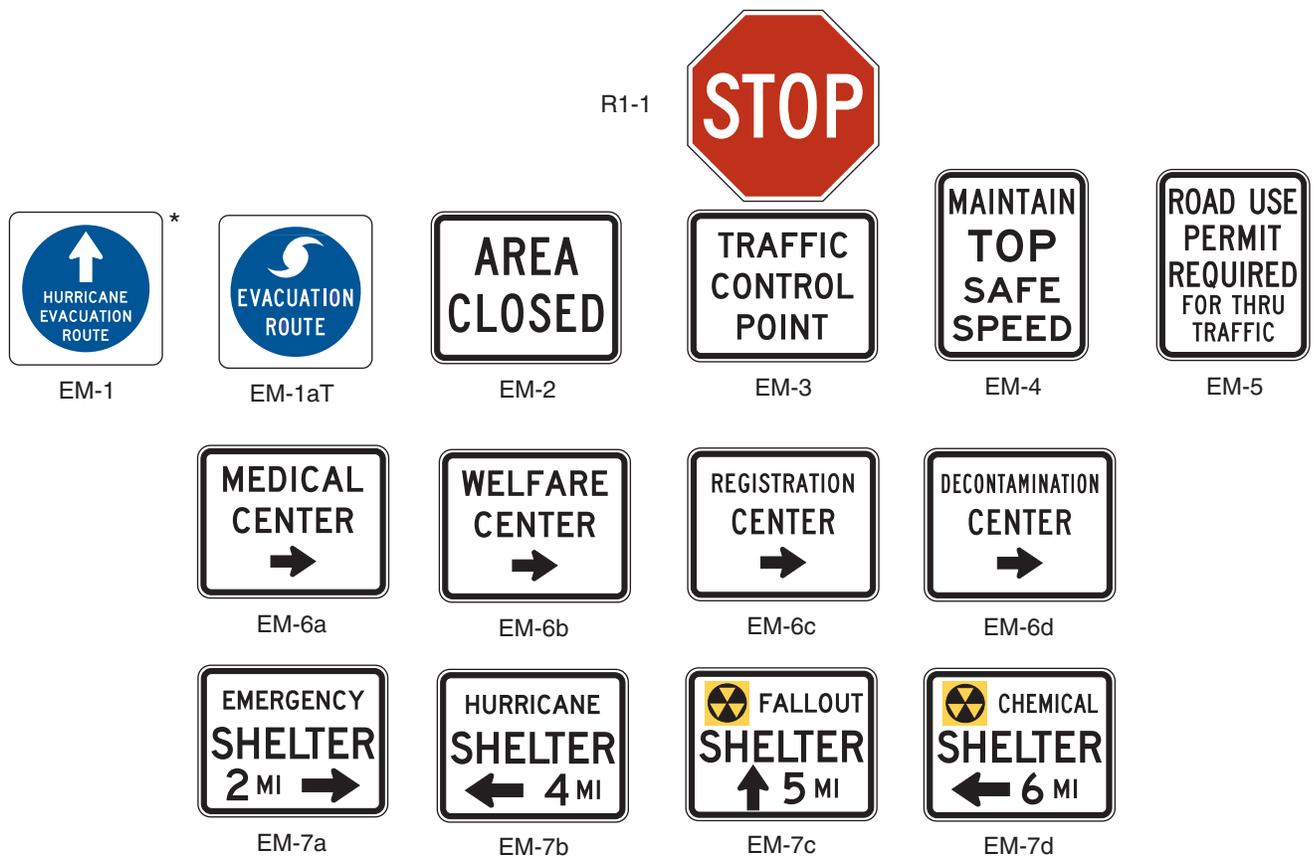
04 If desired, the word HURRICANE, or a word that describes some other type of evacuation route, may be added as a third line of text above the white EVACUATION ROUTE legend within the blue circular symbol on the EM-1 sign.

Table 2N-1. Emergency Management Sign Sizes

Sign or Plaque	Sign Designation	Section	Minimum Size
Evacuation Route	EM-1,EM-1aT	2N.03	24 x 24
Area Closed	EM-2	2N.04	30 x 24
Traffic Control Point	EM-3	2N.05	30 x 24
Maintain Top Safe Speed	EM-4	2N.06	24 x 30
Permit Required	EM-5	2N.07	24 x 30
Emergency Aid Center	EM-6a to EM-6d	2N.08	30 x 24
Shelter Directional	EM-7a to EM-7d	2N.09	30 x 24

Notes: 1. Larger signs may be used when appropriate
 2. Dimensions in inches are shown as width x height

Figure 2N-1. Emergency Management Signs



* HURRICANE is an example of one type of evacuation route. Legends for other types may also be used, or this line of text may be omitted.

05 An approved Emergency Management symbol with a diameter of 3.5 inches may appear near the bottom of an Evacuation Route sign.

Standard:

06 **The arrow designs, if used, on the EM-1 sign shall include a straight, vertical arrow pointing upward, a straight horizontal arrow pointing to the left or right, or a bent arrow pointing to the left or right for advance warning of a turn.**

07 **If used, the Evacuation Route sign, with the appropriate arrow, shall be installed 150 to 300 feet in advance of, and at, any turn in an approved evacuation route. The sign shall also be installed elsewhere for straight-ahead confirmation where needed.**

08 **If used in urban areas, the Evacuation Route sign shall be mounted at the right-hand side of the roadway, not less than 7 feet above the top of the curb, and at least 1 foot back from the face of the curb. If used in rural areas, the Evacuation Route sign shall be mounted at the right-hand side of the roadway, not less than 7 feet above the pavement and not less than 6 feet or more than 10 feet to the right of the right-hand roadway edge.**

09 **Evacuation Route signs shall not be placed where they will conflict with other signs. Where conflict in placement would occur between the Evacuation Route sign and a standard regulatory sign, the regulatory sign shall take precedence.**

Option:

10 In case of conflict with guide or warning signs, the Evacuation Route sign may take precedence.

Guidance:

11 *Placement of Evacuation Route signs should be made under the supervision of the officials having jurisdiction over the placement of other traffic signs. Coordination with Emergency Management authorities and agreement between contiguous political entities should occur to assure continuity of routes.*

Section 2N.04 AREA CLOSED Sign (EM-2)

Standard:

01 **The AREA CLOSED (EM-2) sign (see Figure 2N-1) shall be used to close a roadway in order to prohibit traffic from entering the area. It shall be installed on the shoulder as near as practical to the right-hand edge of the roadway, or preferably, on a portable mounting or barricade partly or entirely in the roadway.**

Guidance:

02 *For best visibility, particularly at night, the sign height should not exceed 4 feet measured vertically from the pavement to the bottom of the sign. Unless adequate advance warning signs are used, it should not be placed to create a complete and unavoidable blocked route. Where feasible, the sign should be located at an intersection that provides a detour route.*

Section 2N.05 TRAFFIC CONTROL POINT Sign (EM-3)

Standard:

01 **The TRAFFIC CONTROL POINT (EM-3) sign (see Figure 2N-1) shall be used to designate a location where an official traffic control point has been set up to impose such controls as are necessary to limit congestion, expedite emergency traffic, exclude unauthorized vehicles, or protect the public.**

02 **The sign shall be installed in the same manner as the AREA CLOSED sign (see Section 2N.04), and at the point where traffic must stop to be checked.**

03 **The standard STOP (R1-1) sign shall be used in conjunction with the TRAFFIC CONTROL POINT sign. The TRAFFIC CONTROL POINT sign shall consist of a black legend and border on a retroreflectorized white background.**

Guidance:

04 *The TRAFFIC CONTROL POINT sign should be mounted directly below the STOP sign.*

Section 2N.06 MAINTAIN TOP SAFE SPEED Sign (EM-4)

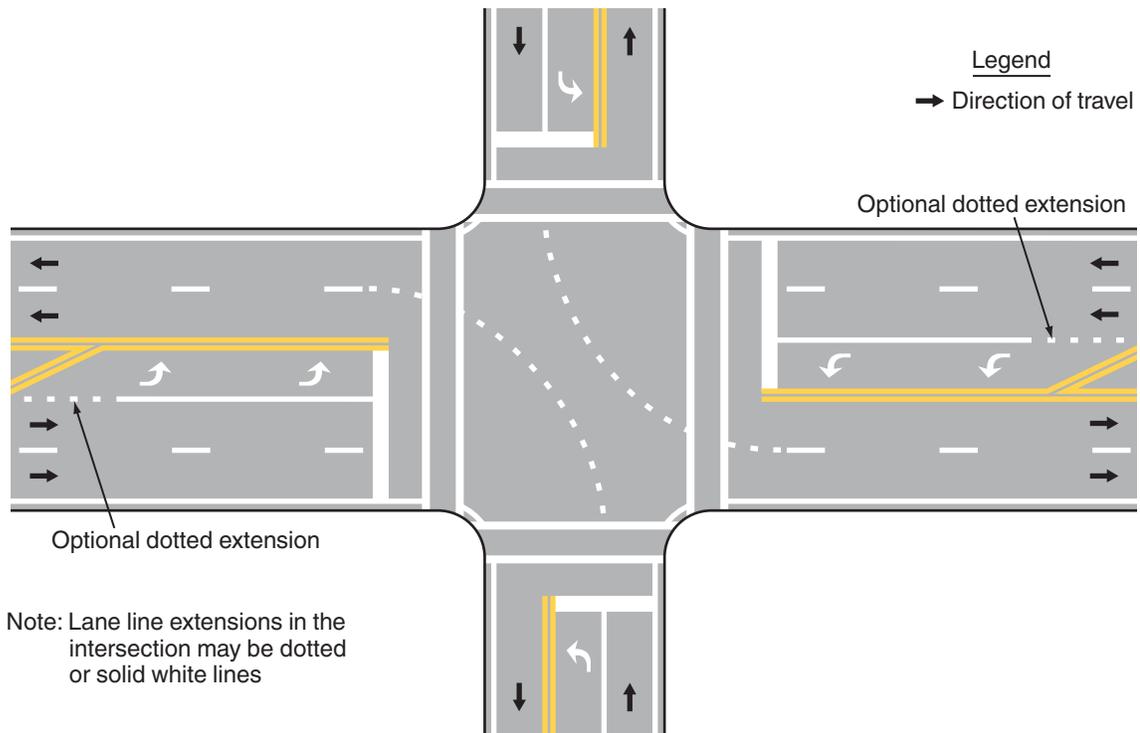
Option:

01 The MAINTAIN TOP SAFE SPEED (EM-4) sign (see Figure 2N-1) may be used on highways where conditions are such that it is prudent to evacuate or traverse an area as quickly as possible.

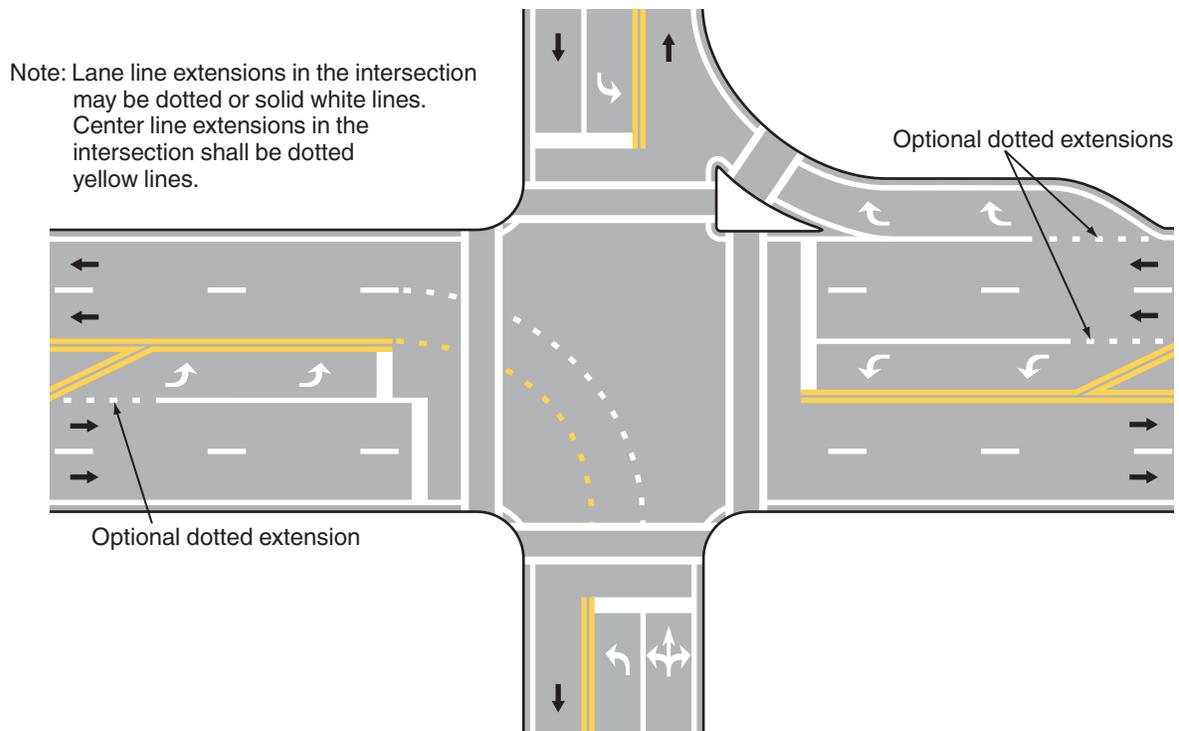
02 Where an existing Speed Limit (R2-1) sign is in a suitable location, the MAINTAIN TOP SAFE SPEED sign may conveniently be mounted directly over the face of the speed limit sign that it supersedes.

Figure 3B-13. Examples of Line Extensions through Intersections (Sheet 2 of 2)

C - Typical dotted line markings to extend lane line markings into the intersection



D - Typical dotted line markings to extend center line and lane line markings into the intersection



Guidance:

- 03 *Where highway design or reduced visibility conditions make it desirable to provide control or to guide vehicles through an intersection or interchange, such as at offset, skewed, complex, or multi-legged intersections, on curved roadways, where multiple turn lanes are used, or where offset left turn lanes might cause driver confusion, dotted line extension markings consisting of 2-foot line segments and 2- to 6-foot gaps should be used to extend longitudinal line markings through an intersection or interchange area.*

Option:

- 04 Dotted edge line extensions may be placed through intersections or major driveways.

Guidance:

- 05 *Where greater restriction is required, solid lane lines or channelizing lines should be extended into or continued through intersections or major driveways.*

Standard:

- 06 **Solid lines shall not be used to extend edge lines into or through intersections or major driveways.**

Guidance:

- 07 *Where a double line is extended through an intersection, a single line of equal width to one of the lines of the double line should be used.*

- 08 *To the extent possible, pavement marking extensions through intersections should be designed in a manner that minimizes potential confusion for drivers in adjacent or opposing lanes.*

Section 3B.09 Lane-Reduction Transition Markings*Support:*

- 01 Lane-reduction transition markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. Lane-reduction transition markings are not used for lane drops.

Standard:

- 02 **Except as provided in Paragraph 3, where pavement markings are used, lane-reduction transition markings shall be used to guide traffic through transition areas where the number of through lanes is reduced, as shown in Figure 3B-14. On two-way roadways, no-passing zone markings shall be used to prohibit passing in the direction of the convergence, and shall continue through the transition area.**

Option:

- 03 On low-speed urban roadways where curbs clearly define the roadway edge in the lane-reduction transition, or where a through lane becomes a parking lane, the edge line and/or delineators shown in Figure 3B-14 may be omitted as determined by engineering judgment.

Guidance:

- 04 *For roadways having a posted or statutory speed limit of 45 mph or greater, the transition taper length for a lane-reduction transition should be computed by the formula $L = WS$. For roadways where the posted or statutory speed limit is less than 45 mph, the formula $L = WS^2/60$ should be used to compute the taper length.*

Support:

- 05 Under both formulas, L equals the taper length in feet, W equals the width of the offset distance in feet, and S equals the 85th-percentile speed or the posted or statutory speed limit, whichever is higher.

Guidance:

- 06 *Where observed speeds exceed posted or statutory speed limits, longer tapers should be used.*

Option:

- 07 On new construction, where no posted or statutory speed limit has been established, the design speed may be used in the transition taper length formula.

Guidance:

- 08 *Lane line markings should be discontinued one-quarter of the distance between the Lane Ends Merge Left (Right) (W9-2T) sign (see Section 2C.42) and the point where the transition taper begins.*

- 09 *Except as provided in Paragraph 3 for low-speed urban roadways, the edge line markings shown in Figure 3B-14 should be installed from the location of the Lane Ends warning sign to beyond the beginning of the narrower roadway.*

Support:

- 10 Pavement markings at lane-reduction transitions supplement the standard signs. See Section 3B.20 for provisions regarding use of lane-reduction arrows.

Figure 3C-13. Example of Markings for Two Linked Roundabouts

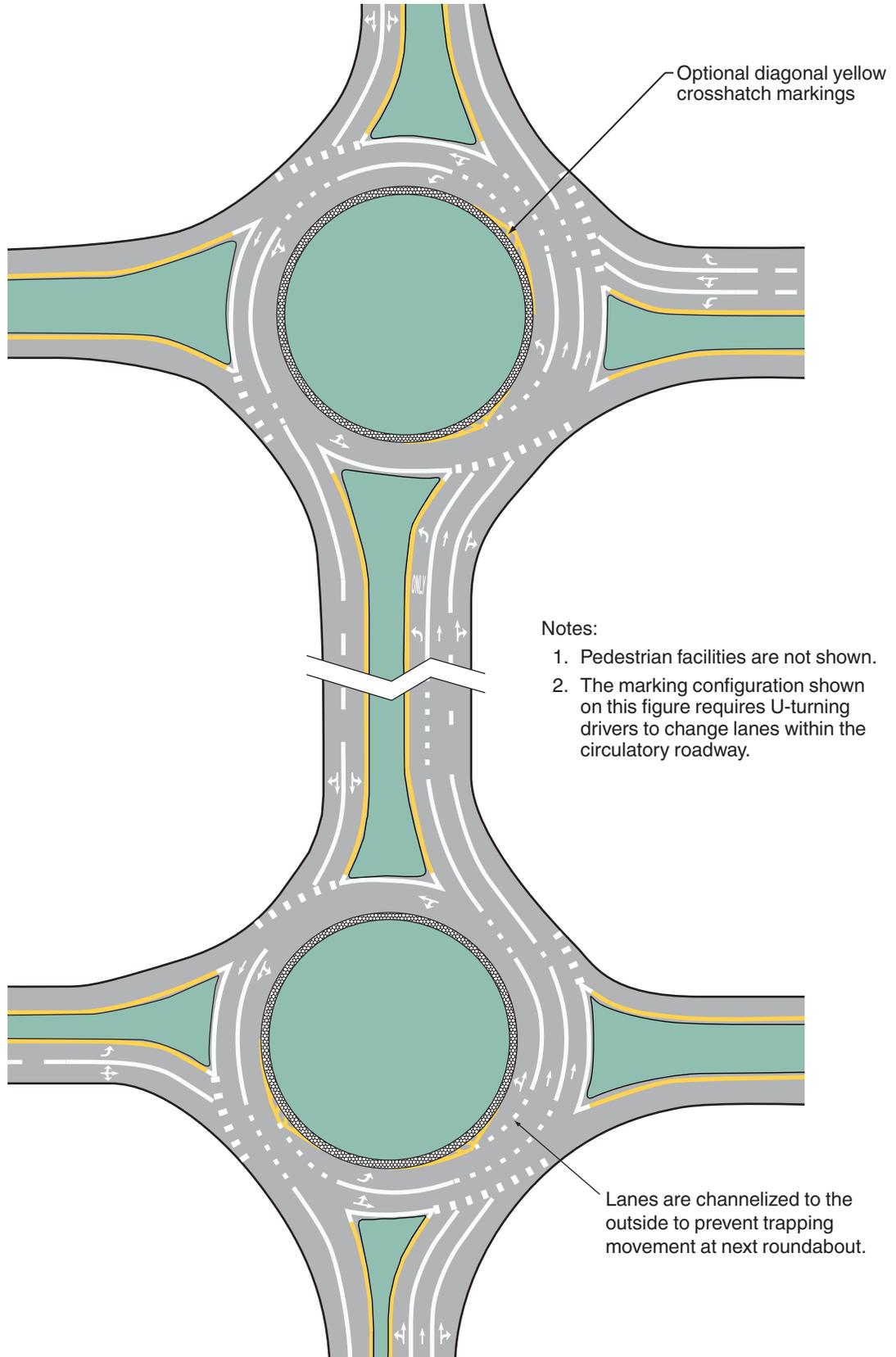
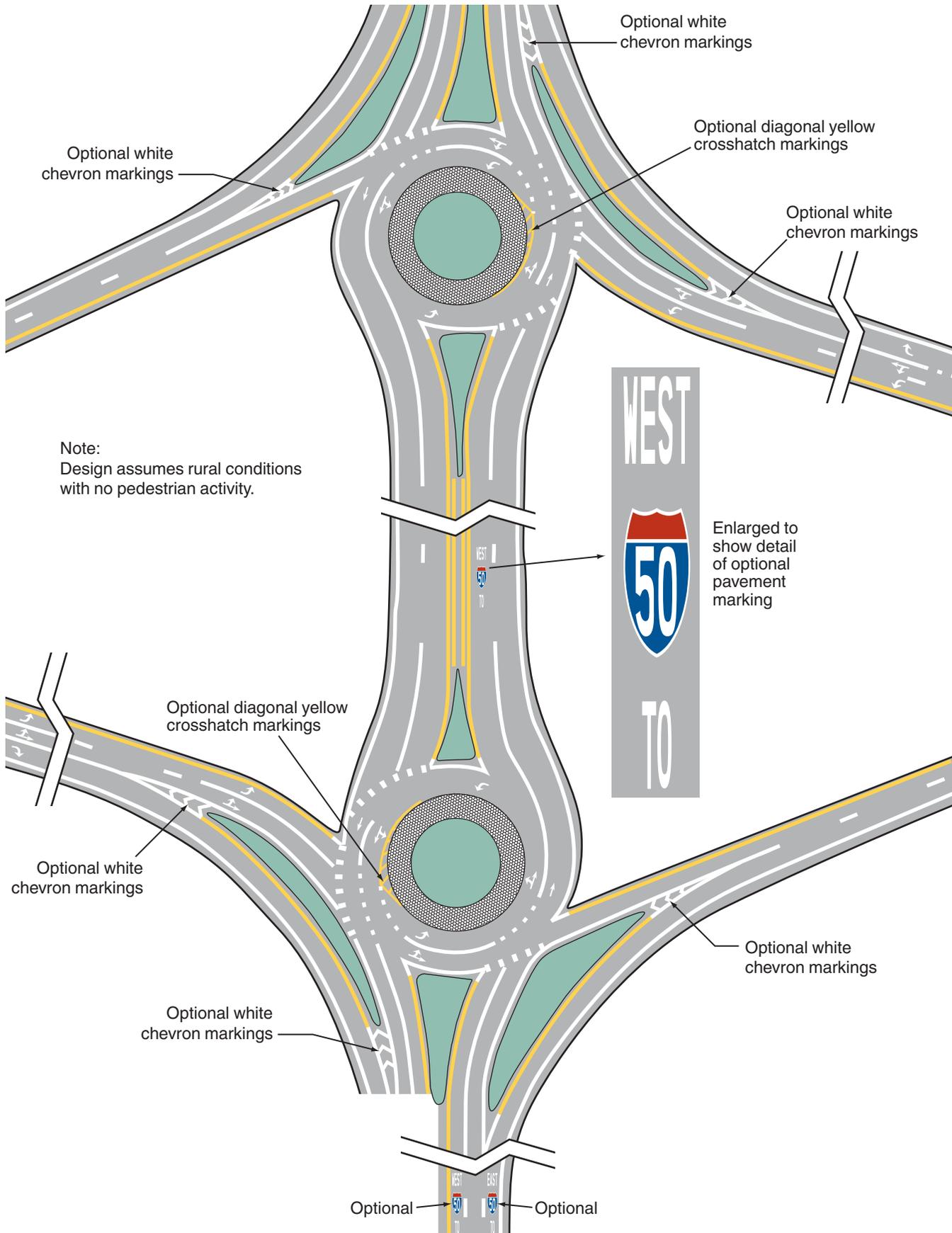


Figure 3C-14. Example of Markings for a Diamond Interchange with Two Circular-Shaped Roundabout Ramp Terminals



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

Option:

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

Standard:

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

Section 4E.05 Location and Height of Pedestrian Signal Heads

Standard:

- 01 **Pedestrian signal heads shall be mounted with the bottom of the signal housing including brackets not less than 7 feet or more than 10 feet above sidewalk level, and shall be positioned and adjusted to provide maximum visibility at the beginning of the controlled crosswalk.**
- 02 **If pedestrian signal heads are mounted on the same support as vehicular signal heads, there shall be a physical separation between them.**

Section 4E.06 Pedestrian Intervals and Signal Phases

Standard:

- 01 **At intersections equipped with pedestrian signal heads, the pedestrian signal indications shall be displayed except when the vehicular traffic control signal is being operated in the flashing mode. At those times, the pedestrian signal indications shall not be displayed.**
- 02 **When the pedestrian signal heads associated with a crosswalk are displaying either a steady WALKING PERSON (symbolizing WALK) or a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication, a steady or a flashing red signal indication shall be shown to any conflicting vehicular movement that is approaching the intersection or midblock location perpendicular or nearly perpendicular to the crosswalk.**
- 03 **When pedestrian signal heads are used, a WALKING PERSON (symbolizing WALK) signal indication shall be displayed only when pedestrians are permitted to leave the curb or shoulder.**
- 04 **A pedestrian change interval consisting of a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication shall begin immediately following the WALKING PERSON (symbolizing WALK) signal indication. Following the pedestrian change interval, a buffer interval consisting of a steady UPRAISED HAND (symbolizing DONT WALK) signal indication shall be displayed for at least 3 seconds prior to the release of any conflicting vehicular movement. The sum of the time of the pedestrian change interval and the buffer interval shall not be less than the calculated pedestrian clearance time (see Paragraphs 7 through 16). The buffer interval shall not begin later than the beginning of the red clearance interval, if used.**

Option:

- 05 During the yellow change interval, the UPRAISED HAND (symbolizing DON'T WALK) signal indication may be displayed as either a flashing indication, a steady indication, or a flashing indication for an initial portion of the yellow change interval and a steady indication for the remainder of the interval.

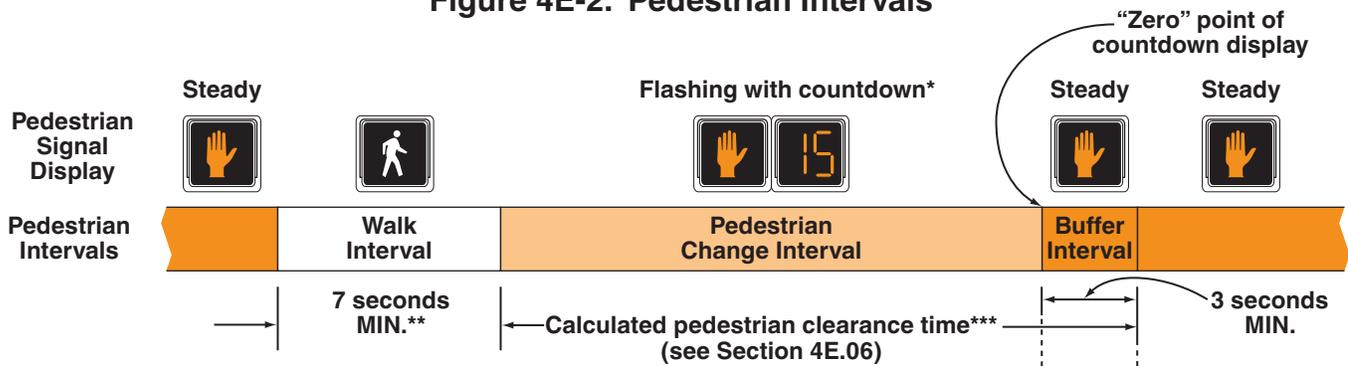
Support:

- 06 Figure 4E-2 illustrates the pedestrian intervals and their possible relationships with associated vehicular signal phase intervals.

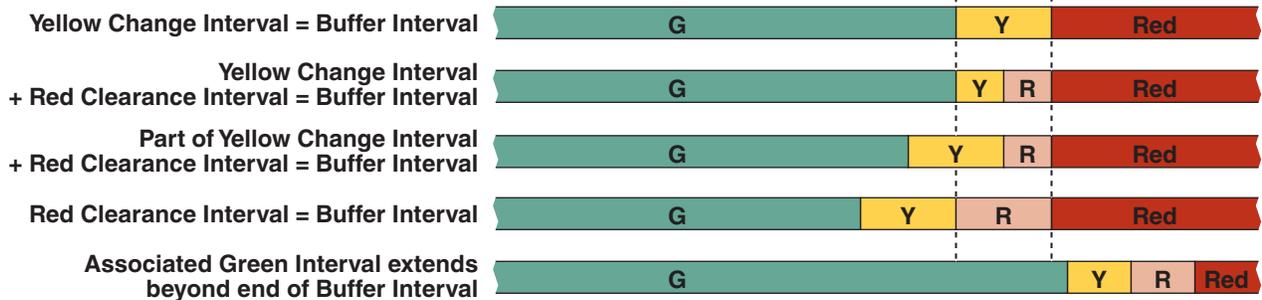
Guidance:

- 07 *Except as provided in Paragraph 8, the pedestrian clearance time should be sufficient to allow a pedestrian crossing in the crosswalk who left the curb or shoulder at the end of the WALKING PERSON (symbolizing WALK) signal indication to travel at a walking speed of 3.5 feet per second to at least the far side of the traveled way or to a median of sufficient width for pedestrians to wait.*

Figure 4E-2. Pedestrian Intervals



Relationship to associated vehicular phase intervals:



Legend

- * The countdown display is optional for Pedestrian Change Intervals of 7 seconds or less.
- ** The Walk Interval may be reduced under some conditions (see Section 4E.06).
- *** The Buffer Interval, which shall always be provided and displayed, may be used to help satisfy the calculated pedestrian clearance time, or may begin after the calculated pedestrian clearance time has ended.
- G** = Green Interval
- Y** = Yellow Change Interval (of at least 3 seconds)
- R** = Red Clearance Interval
- Red** = Red because conflicting traffic has been released

Option:

08 A walking speed of up to 4 feet per second may be used to evaluate the sufficiency of the pedestrian clearance time at locations where an extended pushbutton press function has been installed to provide slower pedestrians an opportunity to request and receive a longer pedestrian clearance time. Passive pedestrian detection may also be used to automatically adjust the pedestrian clearance time based on the pedestrian's actual walking speed or actual clearance of the crosswalk.

09 The additional time provided by an extended pushbutton press to satisfy pedestrian clearance time needs may be added to either the walk interval or the pedestrian change interval.

Guidance:

10 *Where pedestrians who walk slower than 3.5 feet per second, or pedestrians who use wheelchairs, routinely use the crosswalk, a walking speed of less than 3.5 feet per second should be considered in determining the pedestrian clearance time.*

11 *Except as provided in Paragraph 12, the walk interval should be at least 7 seconds in length so that pedestrians will have adequate opportunity to leave the curb or shoulder before the pedestrian clearance time begins.*

Option:

12 If pedestrian volumes and characteristics do not require a 7-second walk interval, walk intervals as short as 4 seconds may be used.

Support:

13 The walk interval is intended for pedestrians to start their crossing. The pedestrian clearance time is intended to allow pedestrians who started crossing during the walk interval to complete their crossing. Longer

Standard:

06 **When used, accessible pedestrian signals shall be used in combination with pedestrian signal timing. The information provided by an accessible pedestrian signal shall clearly indicate which pedestrian crossing is served by each device.**

07 **Under stop-and-go operation, accessible pedestrian signals shall not be limited in operation by the time of day or day of week.**

Option:

08 Accessible pedestrian signal detectors may be pushbuttons or passive detection devices.

09 At locations with pretimed traffic control signals or non-actuated approaches, pedestrian pushbuttons may be used to activate the accessible pedestrian signals.

Support:

10 Accessible pedestrian signals are typically integrated into the pedestrian detector (pushbutton), so the audible tones and/or messages come from the pushbutton housing. They have a pushbutton locator tone and tactile arrow, and can include audible beaconing and other special features.

Option:

11 The name of the street to be crossed may also be provided in accessible format, such as Braille or raised print. Tactile maps of crosswalks may also be provided.

Support:

12 Specifications regarding the use of Braille or raised print for traffic control devices can be found in the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)” (see Section 1A.11).

Standard:

13 **At accessible pedestrian signal locations where pedestrian pushbuttons are used, each pushbutton shall activate both the walk interval and the accessible pedestrian signals.**

Section 4E.10 Accessible Pedestrian Signals and Detectors – Location

Support:

01 Accessible pedestrian signals that are located as close as possible to pedestrians waiting to cross the street provide the clearest and least ambiguous indication of which pedestrian crossing is served by a device.

Guidance:

02 *Pushbuttons for accessible pedestrian signals should be located in accordance with the provisions of Section 4E.08 and should be located as close as possible to the crosswalk line furthest from the center of the intersection and as close as possible to the curb ramp.*

Standard:

03 If two accessible pedestrian pushbuttons are placed less than 10 feet apart or on the same pole, each accessible pedestrian pushbutton shall be provided with the following features (see Sections 4E.11 through 4E.13):

- A. A pushbutton locator tone,
- B. A tactile arrow,
- C. A speech walk message for the WALKING PERSON (symbolizing WALK) indication, and
- D. A speech pushbutton information message.

04 **If the pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and accessible pedestrian detectors are used, an additional accessible pedestrian detector shall be provided in the median.**

Section 4E.11 Accessible Pedestrian Signals and Detectors – Walk Indications

Support:

01 Technology that provides different sounds for each non-concurrent signal phase has frequently been found to provide ambiguous information. Research indicates that a rapid tick tone for each crossing coming from accessible pedestrian signal devices on separated poles located close to each crosswalk provides unambiguous information to pedestrians who are blind or visually impaired. Vibrotactile indications provide information to pedestrians who are blind and deaf and are also used by pedestrians who are blind or who have low vision to confirm the walk signal in noisy situations.

Standard:

- 02 **Accessible pedestrian signals shall have both audible and vibrotactile walk indications.**
- 03 **Vibrotactile walk indications shall be provided by a tactile arrow on the pushbutton (see Section 4E.12) that vibrates during the walk interval.**
- 04 **Accessible pedestrian signals shall have an audible walk indication during the walk interval only. The audible walk indication shall be audible from the beginning of the associated crosswalk.**
- 05 **The accessible walk indication shall have the same duration as the pedestrian walk signal except when the pedestrian signal rests in walk.**

Guidance:

- 06 *If the pedestrian signal rests in walk, the accessible walk indication should be limited to the first 7 seconds of the walk interval. The accessible walk indication should be recalled by a button press during the walk interval provided that the crossing time remaining is greater than the pedestrian change interval.*

Standard:

- 07 **Where two accessible pedestrian signals are separated by a distance of at least 10 feet, the audible walk indication shall be a percussive tone. Where two accessible pedestrian signals on one corner are not separated by a distance of at least 10 feet, the audible walk indication shall be a speech walk message.**
- 08 **Audible tone walk indications shall repeat at eight to ten ticks per second. Audible tones used as walk indications shall consist of multiple frequencies with a dominant component at 880 Hz.**

Guidance:

- 09 *The volume of audible walk indications and pushbutton locator tones (see Section 4E.12) should be set to be a maximum of 5 dBA louder than ambient sound, except when audible beaconing is provided in response to an extended pushbutton press.*

Standard:

- 10 **Automatic volume adjustment in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA.**

Guidance:

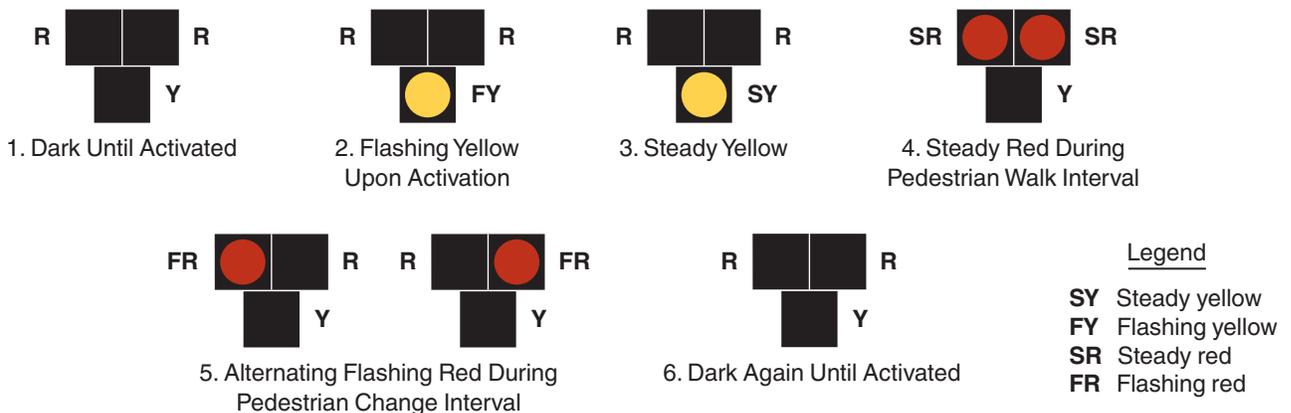
- 11 *The sound level of audible walk indications and pushbutton locator tones should be adjusted to be low enough to avoid misleading pedestrians who have visual disabilities when the following conditions exist:*
- A. *Where there is an island that allows unsignalized right turns across a crosswalk between the island and the sidewalk.*
 - B. *Where multi-leg approaches or complex signal phasing require more than two pedestrian phases, such that it might be unclear which crosswalk is served by each audible tone.*
 - C. *At intersections where a diagonal pedestrian crossing is allowed, or where one street receives a WALKING PERSON (symbolizing WALK) signal indication simultaneously with another street.*

Option:

- 12 **An alert tone, which is a very brief burst of high-frequency sound at the beginning of the audible walk indication that rapidly decays to the frequency of the walk tone, may be used to alert pedestrians to the beginning of the walk interval.**

Support:

- 13 **An alert tone can be particularly useful if the walk tone is not easily audible in some traffic conditions.**
- 14 **Speech walk messages communicate to pedestrians which street has the walk interval. Speech messages might be either directly audible or transmitted, requiring a personal receiver to hear the message. To be a useful system, the words and their meaning need to be correctly understood by all users in the context of the street environment where they are used. Because of this, tones are the preferred means of providing audible walk indications except where two accessible pedestrian signals on one corner are not separated by a distance of at least 10 feet.**
- 15 **If speech walk messages are used, pedestrians have to know the names of the streets that they are crossing in order for the speech walk messages to be unambiguous. In getting directions to travel to a new location, pedestrians with visual disabilities do not always get the name of each street to be crossed. Therefore, it is desirable to give users of accessible pedestrian signals the name of the street controlled by the pushbutton. This can be done by means of a speech pushbutton information message (see Section 4E.13) during the flashing or steady UPRAISED HAND intervals, or by raised print and Braille labels on the pushbutton housing.**

Figure 4F-3. Sequence for a Pedestrian Hybrid Beacon

B. Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk, or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance,

C. The installation should include suitable standard signs and pavement markings, and

D. If installed within a signal system, the pedestrian hybrid beacon should be coordinated.

05 On approaches having posted or statutory speed limits or 85th-percentile speeds in excess of 35 mph and on approaches having traffic or operating conditions that would tend to obscure visibility of roadside hybrid beacon face locations, both of the minimum of two pedestrian hybrid beacon faces should be installed over the roadway.

06 On multi-lane approaches having a posted or statutory speed limits or 85th-percentile speeds of 35 mph or less, either a pedestrian hybrid beacon face should be installed on each side of the approach (if a median of sufficient width exists) or at least one of the pedestrian hybrid beacon faces should be installed over the roadway.

07 A pedestrian hybrid beacon should comply with the signal face location provisions described in Sections 4D.11 through 4D.16.

Standard:

08 A CROSSWALK STOP ON RED (symbolic circular red) (R10-23) sign (see Section 2B.53) shall be mounted adjacent to a pedestrian hybrid beacon face on each major street approach. If an overhead pedestrian hybrid beacon face is provided, the sign shall be mounted adjacent to the overhead signal face.

Option:

09 A Pedestrian (W11-2) warning sign (see Section 2C.50) with an AHEAD (W16-9P) supplemental plaque may be placed in advance of a pedestrian hybrid beacon. A warning beacon may be installed to supplement the W11-2 sign.

Guidance:

10 If a warning beacon supplements a W11-2 sign in advance of a pedestrian hybrid beacon, it should be programmed to flash only when the pedestrian hybrid beacon is not in the dark mode.

Standard:

11 If a warning beacon is installed to supplement the W11-2 sign, the design and location of the warning beacon shall comply with the provisions of Sections 4L.01 and 4L.03.

Section 4F.03 Operation of Pedestrian Hybrid Beacons

Standard:

01 Pedestrian hybrid beacon indications shall be dark (not illuminated) during periods between actuations.

02 Upon actuation by a pedestrian, a pedestrian hybrid beacon face shall display a flashing CIRCULAR yellow signal indication, followed by a steady CIRCULAR yellow signal indication, followed by both steady CIRCULAR RED signal indications during the pedestrian walk interval, followed by alternating flashing CIRCULAR RED signal indications during the pedestrian change interval (see Figure 4F-3). Upon termination of the pedestrian change interval, the pedestrian hybrid beacon faces shall revert to a dark (not illuminated) condition.

03 Except as provided in Paragraph 4, the pedestrian signal heads shall continue to display a steady UPRAISED HAND (symbolizing DONT WALK) signal indication when the pedestrian hybrid beacon faces are either dark or displaying flashing or steady CIRCULAR yellow signal indications. The pedestrian signal heads shall display a WALKING PERSON (symbolizing WALK) signal indication when the pedestrian hybrid beacon faces are displaying steady CIRCULAR RED signal indications. The pedestrian signal heads shall display a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication when the pedestrian hybrid beacon faces are displaying alternating flashing CIRCULAR RED signal indications. Upon termination of the pedestrian change interval, the pedestrian signal heads shall revert to a steady UPRAISED HAND (symbolizing DONT WALK) signal indication.

Option:

04 Where the pedestrian hybrid beacon is installed adjacent to a roundabout to facilitate crossings by pedestrians with visual disabilities and an engineering study determines that pedestrians without visual disabilities can be allowed to cross the roadway without actuating the pedestrian hybrid beacon, the pedestrian signal heads may be dark (not illuminated) when the pedestrian hybrid beacon faces are dark.

Guidance:

05 *The duration of the flashing yellow interval should be determined by engineering judgment.*

Standard:

06 **The duration of the steady yellow change interval shall be determined using engineering practices.**

Guidance:

07 *The steady yellow interval should have a minimum duration of 3 seconds and a maximum duration of 6 seconds (see Section 4D.26). The longer intervals should be reserved for use on approaches with higher speeds.*

CHAPTER 4G. TRAFFIC CONTROL SIGNALS FOR EMERGENCY-VEHICLE ACCESS

Section 4G.01 Application of Emergency-Vehicle Traffic Control Signals

Support:

01 An emergency-vehicle traffic control signal is a special traffic control signal that assigns the right-of-way to an authorized emergency vehicle.

Option:

02 An emergency-vehicle traffic control signal may be installed at a location that does not meet other traffic signal warrants such as at an intersection or other location to permit direct access from a building housing the emergency vehicle.

Guidance:

03 *If a traffic control signal is not justified under the signal warrants of Chapter 4C and if gaps in traffic are not adequate to permit the timely entrance of emergency vehicles, or the stopping sight distance for vehicles approaching on the major street is insufficient for emergency vehicles, installing an emergency-vehicle traffic control signal should be considered. If one of the signal warrants of Chapter 4C is met and a traffic control signal is justified by an engineering study, and if a decision is made to install a traffic control signal, it should be installed based upon the provisions of Chapter 4D.*

04 *The sight distance determination should be based on the location of the visibility obstruction for the critical approach lane for each street or drive and the posted or statutory speed limit or 85th-percentile speed on the major street, whichever is higher.*

Option:

05 If a traffic control signal is not justified under the signal warrants of Chapter 4C, an emergency-vehicle signal may be considered if an engineering study finds that both of the following two criteria are met:

- A. 75% or more of the major street approach for the interruption of Continuous Traffic Warrant (Condition B of Warrant 1, see Section 4C.02).
- B. A minimum of 30 calls per month (360 per year) requiring an emergency vehicle response and any of the following:
 - a. Poor sight distance which cannot be corrected economically or
 - b. An accident problem, or
 - c. High approach speeds.

Section 4G.02 Design of Emergency-Vehicle Traffic Control Signals

Standard:

01 Except as otherwise provided in this Section, an emergency-vehicle traffic control signal shall meet the requirements of this Manual.

02 An Emergency Vehicle (W11-8) sign (see Section 2C.49) with an EMERGENCY SIGNAL AHEAD (W11-12P) supplemental plaque shall be placed in advance of all emergency-vehicle traffic control signals. If a warning beacon is installed to supplement the W11-8 sign, the design and location of the beacon shall comply with the Standards of Sections 4L.01 and 4L.03.

Guidance:

03 *At least one of the two required signal faces for each approach on the major street should be located over the roadway.*

04 *The following size signal indications should be used for emergency-vehicle traffic control signals: 12-inch diameter for steady red and steady yellow circular signal indications and any arrow indications, and 8-inch diameter for green or flashing yellow circular signal indications.*

Standard:

05 An EMERGENCY SIGNAL (R10-13) sign shall be mounted adjacent to a signal face on each major street approach (see Section 2B.53). If an overhead signal face is provided, the sign shall be mounted adjacent to the overhead signal face.

Option:

06 An approach that only serves emergency vehicles may be provided with only one signal face consisting of one or more signal sections.

- 07 Besides using an 8-inch diameter signal indication, other appropriate means to reduce the flashing yellow light output may be used.

Section 4G.03 Operation of Emergency-Vehicle Traffic Control Signals

Standard:

- 01 **Right-of-way for emergency vehicles at signalized locations operating in the steady (stop-and-go) mode shall be obtained as provided in Section 4D.27.**
- 02 **As a minimum, the signal indications, sequence, and manner of operation of an emergency-vehicle traffic control signal installed at a midblock location shall be as follows:**
- A. **The signal indication, between emergency-vehicle actuations, shall be either green or flashing yellow. If the flashing yellow signal indication is used instead of the green signal indication, it shall be displayed in the normal position of the green signal indication, while the steady red and steady yellow signal indications shall be displayed in their normal positions.**
 - B. **When an emergency-vehicle actuation occurs, a steady yellow change interval followed by a steady red interval shall be displayed to traffic on the major street.**
 - C. **A yellow change interval is not required following the green interval for the emergency-vehicle driveway.**
- 03 **Emergency-vehicle traffic control signals located at intersections shall either be operated in the flashing mode between emergency-vehicle actuations (see Sections 4D.28 and 4D.30) or be full-actuated or semi-actuated to accommodate normal vehicular and pedestrian traffic on the streets.**
- 04 **Warning beacons, if used with an emergency-vehicle traffic control signal, shall be flashed only:**
- A. **For an appropriate time in advance of and during the steady yellow change interval for the major street; and**
 - B. **During the steady red interval for the major street.**

Guidance:

- 05 *The duration of the steady red interval for traffic on the major street should be determined by on-site test-run time studies, but should not exceed 1.5 times the time required for the emergency vehicle to clear the path of conflicting vehicles.*

Option:

- 06 An emergency-vehicle traffic control signal sequence may be initiated manually from a local control point such as a fire station or law enforcement headquarters or from an emergency vehicle equipped for remote operation of the signal.

Section 4G.04 Emergency-Vehicle Hybrid Beacons ~~DELETED~~

Section 4G.05 Application of Emergency Vehicle Warning Beacon

Option:

- 01 An emergency vehicle warning beacon may be installed if there is a minimum of 30 calls per month (360 per year) requiring an emergency vehicle response and at least one of the following:
- A. Poor sight distance which cannot be corrected economically, or
 - B. An accident problem, or
 - C. High approach speed.

Guidance:

- 02 *The sight distance determination should be based on the location of the visibility obstruction for the critical approach lane for each street or drive and the posted or statutory speed limit or 85th-percentile speed on the major street, whichever is higher.*

Standard:

- 03 **If used, an emergency vehicle warning beacon shall be installed on top of the WATCH FOR EMERGENCY VEHICLES (W11-12T) sign and the WHEN FLASHING (W16-13P) plaque shall be installed below the W11-12T sign (see Section 2C.40). Flashing beacon units and their mountings shall follow the provisions of Chapter 4D and 4L.**

Section 5C.03 Intersection Warning Signs (W2-1 through W2-6)

Support:

01 Intersection signs (see Figure 5C-1) include the crossroad, side road, T-symbol, Y-symbol, and circular intersection signs.

Option:

02 Intersection signs may be used where engineering judgment indicates a need to inform the road user in advance of an intersection.

Section 5C.04 Stop Ahead and Yield Ahead Signs (W3-1, W3-2)

Standard:

01 A Stop Ahead (W3-1) sign (see Figure 5C-2) shall be used where a STOP sign is not visible for a sufficient distance to permit the road user to bring the vehicle to a stop at the STOP sign.

02 A Yield Ahead (W3-2) sign (see Figure 5C-2) shall be used where a YIELD sign is not visible for a sufficient distance to permit the road user to bring the vehicle to a stop, if necessary, at the YIELD sign.

Section 5C.05 NARROW BRIDGE Sign (W5-2)

Option:

01 The NARROW BRIDGE (W5-2) sign (see Figure 5C-2) may be used on an approach to a bridge or culvert that has a clear width less than that of the approach roadway.

Section 5C.06 ONE LANE BRIDGE Sign (W5-3)

Guidance:

01 A ONE LANE BRIDGE (W5-3) sign (see Figure 5C-2) should be used on low-volume two-way roadways in advance of any bridge or culvert:

- A. Having a clear roadway width of less than 16 feet, or
- B. Having a clear roadway width of less than 18 feet when commercial vehicles constitute a high proportion of the traffic, or
- C. Having a clear roadway width of 18 feet or less where the approach sight distance is limited on the approach to the structure.

Option:

02 Roadway alignment and additional warning may be provided on the approach to a bridge or culvert by the use of object markers and/or delineators.

Section 5C.07 Hill Sign (W7-1)

Option:

01 An engineering study of vehicles and road characteristics, such as percent grade and length of grade, may be conducted to determine hill signing requirements.

Section 5C.08 PAVEMENT ENDS Sign (W8-3)

Option:

01 A PAVEMENT ENDS (W8-3) sign (see Figure 5C-2) may be used to warn road users where a paved surface changes to a gravel or earth road surface.

Section 5C.09 Vehicular Traffic Warning and Non-Vehicular Warning Signs (W11 Series and W8-6)

Guidance:

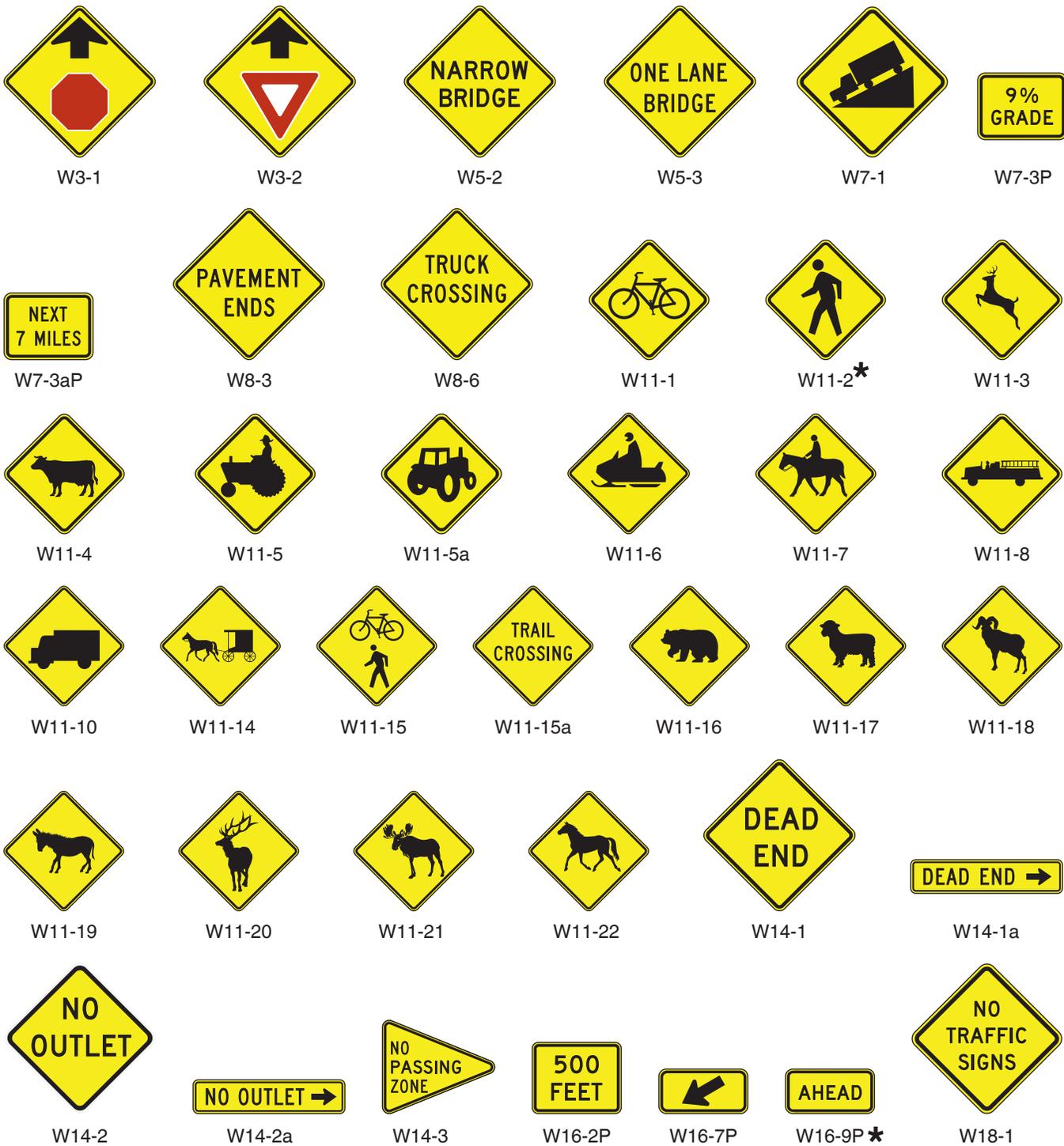
01 Vehicular Traffic Warning signs (see Figure 5C-2) should be used to alert road users to locations where frequent unexpected entries into the roadway by trucks, bicyclists, farm vehicles, fire trucks, and other vehicles might occur. Such signs should be used only at locations where the road user's sight distance is restricted or the condition, activity, or entering traffic would be unexpected.

Option:

02 Non-Vehicular Warning signs (see Figure 5C-2) may be used to alert road users in advance of locations where unexpected entries into the roadway or shared use by pedestrians, large animals, or other crossing activities might occur.

03 A W7-3aP, W16-2P, or W16-9P supplemental plaque (see Figure 5C-2), with the legend NEXT XX MILES, XX FEET, or AHEAD may be installed below a Vehicular Traffic Warning or Non-Vehicular Warning sign (see Sections 2C.49 and 2C.50) to inform road users that they are approaching a portion of the roadway or a point where crossing activity might occur.

Figure 5C-2. Other Warning Signs and Plaques on Low-Volume Roads



* A fluorescent yellow-green background color may be used for this sign or plaque

CHAPTER 6C. TEMPORARY TRAFFIC CONTROL ELEMENTS

Section 6C.01 Temporary Traffic Control Plans

Support:

- 01 A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.
- 02 TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

Guidance:

- 03 *TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment.*
- 04 *Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.*
- 05 *Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.*
- 06 *Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals (see Section 4E.09), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.*

Option:

- 07 Provisions may be incorporated into the project bid documents that enable contractors to develop an alternate TTC plan.
- 08 Modifications of TTC plans may be necessary because of changed conditions or a determination of better methods of safely and efficiently handling road users.

Standard:

- 09 **This alternate or modified plan shall have the approval of the responsible highway agency prior to implementation.**

Guidance:

- 10 *Provisions for effective continuity of transit service should be incorporated into the TTC planning process because often public transit buses cannot efficiently be detoured in the same manner as other vehicles (particularly for short-term maintenance projects). Where applicable, the TTC plan should provide for features such as accessible temporary bus stops, pull-outs, and satisfactory waiting areas for transit patrons, including persons with disabilities, if applicable (see Section 8A.08 for additional light rail transit issues to consider for TTC).*
- 11 *Provisions for effective continuity of railroad service and acceptable access to abutting property owners and businesses should also be incorporated into the TTC planning process.*
- 12 *Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can travel through the TTC zone with a speed limit reduction of no more than 10 mph.*
- 13 *A reduction of more than 10 mph in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 10 mph, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.*
- 14 *Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.*

Support:

- 15 Research has demonstrated that large reductions in the speed limit, such as a 30 mph reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 10 mph cause smaller changes

in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 10 mph from the normal speed limit has been shown to be more effective.

Section 6C.02 Temporary Traffic Control Zones

Support:

- 01 A TTC zone is an area of a highway where road user conditions are changed because of a work zone, an incident zone, or a planned special event through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.
- 02 A work zone is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.
- 03 An incident zone is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 6I.01). It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.
- 04 A planned special event often creates the need to establish altered traffic patterns to handle the increased traffic volumes generated by the event. The size of the TTC zone associated with a planned special event can be small, such as closing a street for a festival, or can extend throughout a municipality for larger events. The duration of the TTC zone is determined by the duration of the planned special event.

Section 6C.03 Components of Temporary Traffic Control Zones

Support:

- 01 Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 6C-1 illustrates these four areas. These four areas are described in Sections 6C.04 through 6C.07.

Section 6C.04 Advance Warning Area

Standard:

- 01 **When the work space is within the traveled way, except for short-duration and mobile operations, advance warning shall provide a general message that work is taking place and shall supply information about highway conditions. TTC devices shall indicate how vehicular traffic can move through the TTC zone.**

Support:

- 02 The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

Option:

- 03 The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Guidance:

- 04 *Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 1/2 mile or more.*
- 05 *On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 feet if assuming 25 mph posted speed. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 6C-1).*
- 06 *Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign in feet should be substantially longer—from 8 to 12 times the speed limit in mph. Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 1,500 feet or more for open highway conditions (see Table 6C-1).*

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone

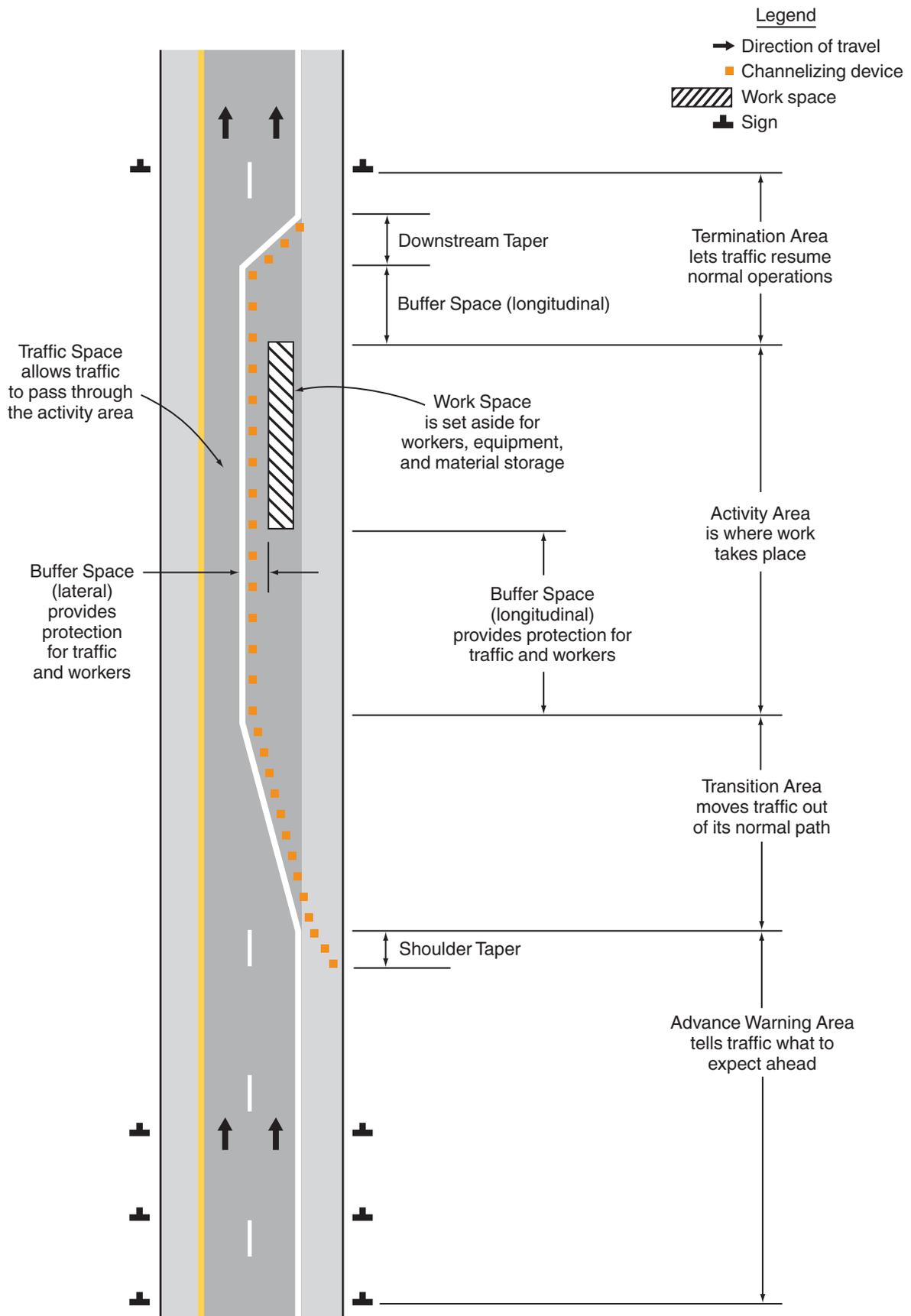


Table 6C-1. Suggested Advance Warning Sign Spacing

Road Classification	Posted Speed (MPH)	Sign Spacing "X" (Feet)
Conventional Highway	25	100
	30	120
	35	160
	40	240
	45	320
	50	400
	55*	500
	60*	600
	65*	700
	70*	800
	75*	900
80*	1000	
Expressway or Freeway	All Speeds	See Typical Applications (Chapter 6H) **

* Distance between signs should be increased to have 1500 feet advance warning (See Section 6C.04.07)

** Distance between signs should be increased to have 1/2 mile or more advance warning. (See Section 6C.04.05)

07 *The distances contained in Table 6C-1 are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted for field conditions, if necessary, by increasing or decreasing the recommended distances.*

Support:

08 The need to provide additional reaction time for a condition is one example of justification for increasing the sign spacing. Conversely, decreasing the sign spacing might be justified in order to place a sign immediately downstream of an intersection or major driveway such that traffic turning onto the roadway in the direction of the TTC zone will be warned of the upcoming condition.

Option:

09 Advance warning may be eliminated when the activity area is sufficiently removed from the road users' path so that it does not interfere with the normal flow.

Section 6C.05 Transition Area

Support:

01 The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

Standard:

02 **When redirection of the road users' normal path is required, they shall be directed from the normal path to a new path.**

Option:

03 Because it is impractical in mobile operations to redirect the road user's normal path with stationary channelization, more dominant vehicle-mounted traffic control devices, such as arrow boards, portable changeable message signs, and high-intensity rotating, flashing, oscillating, or strobe lights, may be used instead of channelizing devices to establish a transition area.

07 Except as provided in Paragraph 8, firefighters or other emergency responders working within the right-of-way shall wear high-visibility safety apparel as described in this Section.

Option:

08 Firefighters or other emergency responders working within the right-of-way and engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials may wear retroreflective turn-out gear that is specified and regulated by other organizations, such as the National Fire Protection Association.

09 The following are additional elements of TTC management that may be considered to improve worker safety:

- A. Shadow Vehicle—in the case of mobile and constantly moving operations, such as pothole patching and striping operations, a shadow vehicle, equipped with appropriate lights and warning signs, may be used to protect the workers from impacts by errant vehicles. The shadow vehicle may be equipped with a rear-mounted impact attenuator.
- B. Road Closure—if alternate routes are available to handle road users, the road may be closed temporarily. This may also facilitate project completion and thus further reduce worker vulnerability.
- C. Law Enforcement Use—in highly vulnerable work situations, particularly those of relatively short duration, law enforcement units may be stationed to heighten the awareness of passing vehicular traffic and to improve safety through the TTC zone.
- D. Lighting—for nighttime work, the TTC zone and approaches may be lighted.
- E. Special Devices—these include rumble strips, changeable message signs, hazard identification beacons, flags, and warning lights. Intrusion warning devices may be used to alert workers to the approach of errant vehicles.

Support:

10 Judicious use of the special devices described in Item E in Paragraph 9 might be helpful for certain difficult TTC situations, but misuse or overuse of special devices or techniques might lessen their effectiveness.

CHAPTER 6E. FLAGGER CONTROL

Section 6E.01 Qualifications for Flaggers

Guidance:

- 01 *Because flaggers are responsible for public safety and make the greatest number of contacts with the public of all highway workers, they should be trained in safe traffic control practices and public contact techniques. Flaggers should be able to satisfactorily demonstrate the following abilities:*
- A. *Ability to receive and communicate specific instructions clearly, firmly, and courteously;*
 - B. *Ability to move and maneuver quickly in order to avoid danger from errant vehicles;*
 - C. *Ability to control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching a TTC zone in frequently changing situations;*
 - D. *Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations; and*
 - E. *Ability to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury.*

Section 6E.02 High-Visibility Safety Apparel

Standard:

- 01 **For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107–2004 publication entitled “American National Standard for High-Visibility Apparel and Headwear” (see Section 1A.11) or equivalent revisions (see section 6D.03) and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. The apparel background (outer) material color shall be fluorescent orange-red, fluorescent yellow-green, or a combination of the two as defined in the ANSI standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.**

Guidance:

- 02 *For nighttime activity, high-visibility safety apparel that meets the Performance Class 3 requirements of the ANSI/ISEA 107–2004 publication entitled “American National Standard for High-Visibility Apparel and Headwear” (see Section 1A.11) and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure should be considered for flagger wear.*

Standard:

- 03 **When uniformed law enforcement officers are used to direct traffic within a TTC zone, they shall wear high-visibility safety apparel as described in this Section.**

Option:

- 04 **In lieu of ANSI/ISEA 107-2004 apparel, law enforcement personnel within the TTC zone may wear high-visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled “American National Standard for High-Visibility Public Safety Vests” (see Section 1A.11) and labeled as ANSI 207-2006.**

Section 6E.03 Hand-Signaling Devices

Guidance:

- 01 *The STOP/SLOW paddle should be the primary and preferred hand-signaling device because the STOP/SLOW paddle gives road users more positive guidance than red flags. Use of flags should be limited to emergency situations.*

Standard:

- 02 **The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. STOP/SLOW paddles shall be at least 18 inches wide with letters at least 6 inches high. The STOP (R1-1) face shall have white letters and a white border on a red background. The SLOW (CW20-8) face shall have black letters and a black border on an orange background. When used at night, the STOP/SLOW paddle shall be retroreflectORIZED.**

Guidance:

- 03 *STOP/SLOW paddles should be 24” wide with letters 8” high when used on roadways with higher speeds or traffic volumes.*
- 04 *The STOP/SLOW paddle should be fabricated from light semi-rigid material.*

Support:

- 05 The optimum method of displaying a STOP or SLOW message is to place the STOP/SLOW paddle on a rigid staff that is tall enough that when the end of the staff is resting on the ground, the message is high enough to be seen by approaching or stopped traffic.

Option:

- 06 The STOP/SLOW paddle may be modified to improve conspicuity by incorporating either white or red flashing lights on the STOP face, and either white or yellow flashing lights on the SLOW face. The flashing lights may be arranged in any of the following patterns:
- A. Two white or red lights, one centered vertically above and one centered vertically below the STOP legend; and/or two white or yellow lights, one centered vertically above and one centered vertically below the SLOW legend;
 - B. Two white or red lights, one centered horizontally on each side of the STOP legend; and/or two white or yellow lights, one centered horizontally on each side of the SLOW legend;
 - C. One white or red light centered below the STOP legend; and/or one white or yellow light centered below the SLOW legend;
 - D. A series of eight or more small white or red lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small white or yellow lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face; or
 - E. A series of white lights forming the shapes of the letters in the legend.

Standard:

- 07 **If flashing lights are used on the STOP face of the paddle, their colors shall be all white or all red. If flashing lights are used on the SLOW face of the paddle, their colors shall be all white or all yellow.**
- 08 **If more than eight flashing lights are used, the lights shall be arranged such that they clearly convey the octagonal shape of the STOP face of the paddle and/or the diamond shape of the SLOW face of the paddle.**
- 09 **If flashing lights are used on the STOP/SLOW paddle, the flash rate shall be at least 50, but not more than 60, flashes per minute.**
- 10 **Flags, when used, shall be red or fluorescent orange-red in color, shall be a minimum of 24 inches square, and shall be securely fastened to a staff that is approximately 36 inches in length.**

Guidance:

- 11 *The free edge of a flag should be weighted so the flag will hang vertically, even in heavy winds.*

Standard:

- 12 **When used at nighttime, flags of either color shall be retroreflective.**

Option:

- 13 When flagging in an emergency situation at night in a non-illuminated flagger station, a flagger may use a flashlight with a red glow cone to supplement the STOP/SLOW paddle or flag.

Standard:

- 14 **When a flashlight is used for flagging in an emergency situation at night in a non-illuminated flagger station, the flagger shall hold the flashlight in the left hand, shall hold the paddle or flag in the right hand as shown in Figure 6E-3, and shall use the flashlight in the following manner to control approaching road users:**
- A. **To inform road users to stop, the flagger shall hold the flashlight with the left arm extended and pointed down toward the ground, and then shall slowly wave the flashlight in front of the body in a slow arc from left to right such that the arc reaches no farther than 45 degrees from vertical.**
 - B. **To inform road users to proceed, the flagger shall point the flashlight at the vehicle's bumper, slowly aim the flashlight toward the open lane, then hold the flashlight in that position. The flagger shall not wave the flashlight.**
 - C. **To alert or slow traffic, the flagger shall point the flashlight toward oncoming traffic and quickly wave the flashlight in a figure eight motion.**

Section 6E.04 Automated Flagger Assistance Devices

Support:

- 01 Automated Flagger Assistance Devices (AFADs) enable a flagger(s) to be positioned out of the lane of traffic and are used to control road users through temporary traffic control zones. These devices are designed to be

remotely operated either by a single flagger at one end of the TTC zone or at a central location, or by separate flaggers near each device's location.

- 02 There are two types of AFADs:
- A. An AFAD (see Section 6E.05) that uses a remotely controlled STOP/SLOW sign on either a trailer or a movable cart system to alternately control right-of-way.
 - B. An AFAD (see Section 6E.06) that uses remotely controlled red and yellow lenses and a gate arm to alternately control right-of-way.
- 03 AFADs might be appropriate for short-term and intermediate-term activities (see Section 6G.02). Typical applications include TTC activities such as, but not limited to:
- A. Bridge maintenance;
 - B. Haul road crossings; and
 - C. Pavement patching.

Standard:

- 04 **AFADs shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled.**

- 05 **When used at night, the AFAD location shall be illuminated in accordance with Section 6E.08.**

Guidance:

- 06 *AFADs should not be used for long-term stationary work (see Section 6G.02).*

Standard:

- 07 **Because AFADs are not traffic control signals, they shall not be used as a substitute for or a replacement for a continuously operating temporary traffic control signal as described in Section 6F.84.**

- 08 **AFADs shall meet the crashworthy performance criteria contained in Section 6F.01.**

Guidance:

- 09 *If used, AFADs should be located in advance of one-lane, two-way tapers and downstream from the point where approaching traffic is to stop in response to the device.*

Standard:

- 10 **If used, AFADs shall be placed so that all of the signs and other items controlling traffic movement are readily visible to the driver of the initial approaching vehicle with advance warning signs alerting other approaching traffic to be prepared to stop.**

- 11 **If used, an AFAD shall be operated only by a flagger (see Section 6E.01) who has been trained on the operation of the AFAD. The flagger(s) operating the AFAD(s) shall not leave the AFAD(s) unattended at any time while the AFAD(s) is being used.**

- 12 **The use of AFADs shall conform to one of the following methods:**

- A. An AFAD at each end of the TTC zone (Method 1), or
- B. An AFAD at one end of the TTC zone and a flagger at the opposite end (Method 2).

- 13 **Except as provided in Paragraph 14, two flaggers shall be used when using either Method 1 or Method 2.**

Option:

- 14 A single flagger may simultaneously operate two AFADs (Method 1) or may operate a single AFAD on one end of the TTC zone while being the flagger at the opposite end of the TTC zone (Method 2) if both of the following conditions are present:

- A. The flagger has an unobstructed view of the AFAD(s), and
- B. The flagger has an unobstructed view of approaching traffic in both directions.

Guidance:

- 15 *When an AFAD is used, the advance warning signing should include a ROAD WORK AHEAD (CW20-1) sign, a ONE LANE ROAD (CW20-4) sign, and a BE PREPARED TO STOP (CW3-4) sign.*

Standard:

- 16 **When the AFAD is not in use, the signs associated with the AFAD, both at the AFAD location and in advance, shall be removed or covered.**

Guidance:

- 17 *A State or local agency that elects to use AFADs should adopt a policy, based on engineering judgment, governing AFAD applications. The policy should also consider more detailed and/or more restrictive requirements for AFAD use, such as the following:*

- A. *Conditions applicable for the use of Method 1 and Method 2 AFAD operation,*

Guidance:

- 08 *When a single flagger is used, the flagger should be stationed on the shoulder opposite the spot lane closure or work space, or in a position where good visibility and traffic control can be maintained at all times.*

Section 6E.08 Flagger Stations

Standard:

- 01 **Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.**

Option:

- 02 The distances shown in Table 6E-1, which provides information regarding the stopping sight distance as a function of speed, may be used for the location of a flagger station. These distances may be increased for downgrades and other conditions that affect stopping distance.

Guidance:

- 03 *Flagger stations should be located such that an errant vehicle has additional space to stop without entering the work space. The flagger should identify an escape route that can be used to avoid being struck by an errant vehicle.*

Standard:

- 04 **Except in emergency situations, flagger stations shall be preceded by an advance warning sign or signs. Except in emergency situations, flagger stations shall be illuminated at night.**

Table 6E-1. Stopping Sight Distance as a Function of Speed

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet
80 mph	910 feet

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

CHAPTER 6F. TEMPORARY TRAFFIC CONTROL ZONE DEVICES

Section 6F.01 Types of Devices

Guidance:

- 01 *The design and application of TTC devices used in TTC zones should consider the needs of all road users (motorists, bicyclists, and pedestrians), including those with disabilities.*

Support:

- 02 FHWA policy requires that all roadside appurtenances such as traffic barriers, barrier terminals and crash cushions, bridge railings, sign and light pole supports, and work zone hardware used on the National Highway System meet the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." The FHWA website at "<http://safety.fhwa.dot.gov/programs/roadsideHardware.htm>" identifies all such hardware and includes copies of FHWA acceptance letters for each of them. In the case of proprietary items, links are provided to manufacturers' websites as a source of detailed information on specific devices. The website also contains an "Ask the Experts" section where questions on roadside design issues can be addressed.
- 03 Various Sections of the TMUTCD require certain traffic control devices, their supports, and/or related appurtenances to be crashworthy. Such TMUTCD crashworthiness provisions apply to all streets, highways, and private roads open to public travel. Also, State Departments of Transportation and local agencies might have expanded the NCHRP Report 350 crashworthy criteria to apply to certain other roadside appurtenances. For a product list of crashworthy traffic control devices see the "Compliant Work Zone Traffic Control Device" list found at <http://www.txdot.gov>.
- 04 Crashworthiness and crash testing information on devices described in Part 6 are found in AASHTO's "Roadside Design Guide" (see Section 1A.11).
- 05 As defined in Section 1A.13, "crashworthy" is a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features:" or AASHTO's "Manual for Assessing Safety Hardware" as appropriate.

Standard:

- 06 **Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide road users, placed on, over, or adjacent to a street, highway, private roads open to public travel (see definition in Section 1A.13), pedestrian facility, or bikeway by authority of a public body or official having jurisdiction.**
- 07 **All traffic control devices used for construction, maintenance, utility, or incident management operations on a street, highway, or private road open to public travel (see definition in Section 1A.13) shall comply with the applicable provisions of this Manual.**

Section 6F.02 General Characteristics of Signs

Support:

- 01 TTC zone signs convey both general and specific messages by means of words, symbols, and/or arrows and have the same three categories as all road user signs: regulatory, warning, and guide.

Standard:

- 02 **The colors for regulatory signs shall follow the Standards for regulatory signs in Table 2A-5 and Chapter 2B. Warning signs in TTC zones shall have a black legend and border on an orange background, except for the Grade Crossing Advance Warning (W10-1) sign which shall have a black legend and border on a yellow background, and except for signs that are required or recommended in Parts 2 or 7 to have fluorescent yellow-green backgrounds. Colors for guide signs shall follow the Standards in Table 2A-5 and Chapter 2D, except for guide signs as otherwise provided in Section 6F.55.**

Option:

- 03 Where the color orange is required, the fluorescent orange color may also be used.

Support:

- 04 The fluorescent version of orange provides higher conspicuity than standard orange, especially during twilight.

Option:

- 05 Existing warning signs that are still applicable may remain in place.

06 In order to maintain the systematic use of yellow or fluorescent yellow-green backgrounds for pedestrian, bicycle, and school warning signs in a jurisdiction, the yellow or fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

07 Standard orange flags or flashing warning lights may be used in conjunction with signs.

Standard:

08 **When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.**

09 **Except as provided in Section 2A.11, the sizes for TTC signs and plaques shall be as shown in Table 6F-1. The sizes in the minimum column shall only be used on local streets or roadways where the 85th-percentile speed or posted speed limit is less than 35 mph.**

Option:

10 The dimensions of signs and plaques shown in Table 6F-1 may be increased wherever necessary for greater legibility or emphasis.

Standard:

11 **Deviations from standard sizes as prescribed in this Manual shall be in 6-inch increments.**

Support:

12 Sign design details are contained in the “Standard Highway Sign Designs for Texas” book (see Section 1A.11).

13 Section 2A.06 contains additional information regarding the design of signs, including an Option allowing the development of special word message signs if a standard word message or symbol sign is not available to convey the necessary regulatory, warning, or guidance information.

Standard:

14 **All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.**

15 **The requirement for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.**

Option:

16 Sign illumination may be either internal or external.

17 Signs may be made of rigid or flexible material.

Section 6F.03 Sign Placement

Guidance:

01 *Signs should be located on the right-hand side of the roadway unless otherwise provided in this Manual.*

Option:

02 Where special emphasis is needed, signs may be placed on both the left-hand and right-hand sides of the roadway. Signs mounted on portable supports may be placed within the roadway itself. Signs may also be mounted on or above barricades.

Support:

03 The provisions of this Section regarding mounting height apply unless otherwise provided for a particular sign elsewhere in this Manual.

Standard:

04 **The minimum height, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement, of signs installed at the side of the road in rural areas shall be 7 feet, or 6 feet to the bottom of a supplemental plaque mounted below the parent sign (see Figure 6F-1).**

05 **The minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of signs installed at the side of the road in business, commercial, or residential areas where parking or pedestrian movements are likely to occur, or where the view of the sign might be obstructed, shall be 7 feet (see Figure 6F-1).**

06 **The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet.**

Table 6F-1. Temporary Traffic Control Zone Sign and Plaque Sizes (Sheet 1 of 4)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway	Minimum
Stop	R1-1	6F.06	30 x 30*	—	—
Stop (on Stop/Slow Paddle)	R1-1	6E.03	18 x 18	—	—
Yield	R1-2	6F.06	36 x 36 x 36*	—	30 x 30 x 30
To Oncoming Traffic (plaque)	R1-2aP	6F.06	36 x 30	48 x 36	
Wait on Stop	R1-7	6E.05	24 x 30	24 x 30	—
Go on Slow	R1-8	6E.05	24 x 30	24 x 30	—
Speed Limit	R2-1	6F.12	24 x 30*	36 x 48	—
Movement Prohibition	R3-1,2,3,4,18,27	6F.06	24 x 24*	36 x 36	—
Mandatory Movement (1 lane)	R3-5	6F.06	30 x 36	—	—
Optional Movement (1 lane)	R3-6	6F.06	30 x 36	—	—
Right (Left) Lane Must Turn Right (Left)	R3-7	6F.06	30 x 30*	—	—
Advance Intersection Lane Control	R3-8 (Series)	6F.06	Varies x 30	—	—
All Traffic Must Exit	R3-33cT	2B.23B	—	48 x 60	—
Do Not Pass	R4-1	6F.06	24 x 30	36 x 48	—
Pass With Care	R4-2	6F.06	24 x 30	36 x 48	—
Keep Right	R4-7	6F.06	24 x 30	36 x 48	—
Narrow Keep Right	R4-7c	6F.06	18 x 30	—	—
Stay in Lane	R4-9	6F.11	24 x 30	36 x 48	—
Do Not Enter	R5-1	6F.06	30 x 30*	36 x 36	—
Wrong Way	R5-1a	6F.06	36 x 24*	42 x 30	—
One Way	R6-1	6F.06	36 x 12*	54 x 18	—
One Way	R6-2	6F.06	24 x 30*	36 x 48	—
No Parking (symbol)	R8-3	6F.06	24 x 24	36 x 36	—
Pedestrian Crosswalk	R9-8	6F.13	36 x 18	—	—
Sidewalk Closed	R9-9	6F.14	24 x 12	—	—
Sidewalk Closed, Use Other Side	R9-10	6F.14	24 x 12	—	—
Sidewalk Closed Ahead, Cross Here	R9-11	6F.14	24 x 12	—	—
Sidewalk Closed, Cross Here	R9-11a	6F.14	24 x 12	—	—
Road Closed	R11-2	6F.08	48 x 30	—	—
Road Closed - Local Traffic Only	R11-3a,3b,4	6F.09	60 x 30	—	—
Weight Limit	R12-1,2	6F.10	24 x 30	36 x 48	—
Obey Warning Signs State Law	R20-3T	6F.12A	48 x 42	48 x 42	—
Traffic Fines Double with Plaque	R20-5T	6F.12	24 x 30	36 x 36	—
When Workers are Present	R20-5aTP	6F.12	24 x 12	36 x 18	—
Turn and Curve Signs	CW1-1,2,3,4	6F.16	36 x 36	48 x 48	30 x 30
Reverse Curve (2 or more lanes)	CW1-4b,4c	6F.48	36 x 36	48 x 48	30 x 30
One-Direction Large Arrow	CW1-6	6F.16	48 x 24	60 x 30	—
Upward Sloping Arrow	CW1-6aT	6F.24B	36 x 36	48 x 48	30 x 30
Chevron Alignment	CW1-8	6F.16	18 x 24	30 x 36	—
Stop Ahead	CW3-1	6F.16	36 x 36	48 x 48	30 x 30
Yield Ahead	CW3-2	6F.16	36 x 36	48 x 48	30 x 30
Signal Ahead	CW3-3	6F.16	36 x 36	48 x 48	30 x 30
Be Prepared to Stop	CW3-4	6F.16	36 x 36	48 x 48	30 x 30
Reduced Speed Limit Ahead	CW3-5	6F.16	36 x 36	48 x 48	30 x 30
Merging Traffic	CW4-1	6F.16	36 x 36	48 x 48	36 x 36
Thru Traffic Merge Left (Right)	CW4-1aT	6F.24A	36 x 36	48 x 48	—

Table 6F-1. Temporary Traffic Control Zone Sign and Plaque Sizes (Sheet 2 of 4)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway	Minimum
Lane Ends (Symbol)	CW4-2	6F.24	36 x 36	48 x 48	30 x 30
Added Lane	CW4-3,6	6F.16	36 x 36	48 x 48	30 x 30
No Merge Area (plaque)	CW4-5P	6F.16	18 x 24	24 x 30	—
Road Narrows	CW5-1	6F.16	36 x 36	48 x 48	30 x 30
Narrow Bridge	CW5-2	6F.16	36 x 36	48 x 48	30 x 30
One Lane Bridge	CW5-3	6F.16	36 x 36	48 x 48	30 x 30
Ramp Narrows	CW5-4	6F.26	36 x 36	48 x 48	30 x 30
Divided Highway	CW6-1	6F.16	36 x 36	48 x 48	30 x 30
Divided Highway Ends	CW6-2	6F.16	36 x 36	48 x 48	30 x 30
Two-Way Traffic	CW6-3	6F.32	36 x 36	48 x 48	30 x 30
Two-Way Traffic	CW6-4	6F.76	12 x 18	12 x 18	—
Hill (symbol)	CW7-1	6F.16	36 x 36	48 x 48	30 x 30
Next XX Miles (plaque)	CW7-3aP	6F.53	24 x 18	36 x 30	—
Bump	CW8-1	6F.16	36 x 36	48 x 48	30 x 30
Dip	CW8-2	6F.16	36 x 36	48 x 48	30 x 30
Pavement Ends	CW8-3	6F.16	36 x 36	48 x 48	30 x 30
Soft Shoulder	CW8-4	6F.44	36 x 36	48 x 48	30 x 30
Slow Down on Wet Road	CW8-5aT	6F.16	36 x 36	48 x 48	30 x 30
Truck Crossing	CW8-6	6F.36	36 x 36	48 x 48	30 x 30
Loose Gravel	CW8-7	6F.16	36 x 36	48 x 48	30 x 30
Rough Road	CW8-8	6F.16	36 x 36	48 x 48	30 x 30
Low Shoulder	CW8-9	6F.44	36 x 36	48 x 48	30 x 30
Uneven Lanes	CW8-11	6F.45	36 x 36	48 x 48	30 x 30
No Center Line	CW8-12	6F.47	36 x 36	48 x 48	30 x 30
Fallen Rocks	CW8-14	6F.16	36 x 36	48 x 48	30 x 30
Grooved Pavement	CW8-15	6F.16	36 x 36	48 x 48	30 x 30
Motorcycle (plaque)	CW8-15P	6F.54	24 x 18	30 x 24	—
Shoulder Drop Off (symbol)	CW8-17	6F.44	36 x 36	48 x 48	30 x 30
Shoulder Drop-Off (plaque)	CW8-17P	6F.44	24 x 18	30 x 24	—
Road May Flood	CW8-18	6F.16	36 x 36	48 x 48	24 x 24
No Shoulder	CW8-23	6F.16	36 x 36	48 x 48	30 x 30
Steel Plate Ahead	CW8-24	6F.46	36 x 36	48 x 48	30 x 30
Shoulder Ends	CW8-25	6F.16	36 x 36	48 x 48	30 x 30
Lane Ends	CW9-1,2	6F.16	36 x 36	48 x 48	30 x 30
Center Lane Closed	CW9-3T	6F.23	36 x 36	48 x 48	30 x 30
Truck	CW11-10	6F.36	36 x 36	48 x 48	30 x 30
Double Arrow	CW12-1	6F.16	30 x 30	—	—
Low Clearance	CW12-2	6F.16	36 x 36	48 x 48	30 x 30
Advisory Speed (plaque)	CW13-1P	6F.52	24 x 24	30 x 30	18 x 18
On Ramp (plaque)	CW13-4P	6F.25	36 x 36	36 x 36	—
No Passing Zone (pennant)	CW14-3	6F.16	48 x 48 x 36	64 x 64 x 48	40 x 40 x 30
XX Feet (plaque)	CW16-2P	6F.37A	24 x 18	30 x 24	—
Distance Plaque	CW16-2aP CW16-3aP	6F.37A	24 x 12	30 x 12	—
Road Work (with distance)	CW20-1	6F.18	36 x 36	48 x 48	30 x 30
Detour (with distance)	CW20-2	6F.19	36 x 36	48 x 48	30 x 30
Road (Street) Closed (with distance)	CW20-3	6F.20	36 x 36	48 x 48	30 x 30
One Lane Road (with distance)	CW20-4	6F.21	36 x 36	48 x 48	30 x 30

Table 6F-1. Temporary Traffic Control Zone Sign and Plaque Sizes (Sheet 3 of 4)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway	Minimum
Lane(s) Closed	CW20-5,5a,5T, 5aT	6F.22	36 x 36	48 x 48	30 x 30
Center Lane Closed	CW20-5cT	6F.23	36 x 36	48 x 48	30 x 30
Lane Blocked	CW20-6T	6F.22A	—	90 x 84	54 x 48
Flagger (symbol)	CW20-7	6F.31	36 x 36	48 x 48	30 x 30
Flagger	CW20-7a	6F.31	36 x 36	48 x 48	30 x 30
Slow (on Stop/Slow Paddle)	CW20-8	6E.03 & 6E.05	24 x 24	—	18 x 18
Narrow Lanes Ahead	CW20-8T	6F.23A	36 x 36	48 x 48	—
Workers	CW21-1aT, 1bT	6F.33	36 x 36	48 x 48	30 x 30
Give Us a Brake	CW21-1T	6F.58B	48 x 48	—	—
Fresh Oil (Tar)	CW21-2	6F.34	36 x 36	48 x 48	30 x 30
Road Machinery Ahead	CW21-3	6F.35	36 x 36	48 x 48	30 x 30
Slow Moving Vehicle	CW21-4	6G.06	36 x 18	—	—
Shoulder Work	CW21-5	6F.37	36 x 36	48 x 48	30 x 30
Shoulder Closed	CW21-5a	6F.37	36 x 36	48 x 48	30 x 30
Shoulder Closed (with distance)	CW21-5b	6F.37	36 x 36	48 x 48	30 x 30
Survey Crew	CW21-6	6F.38	36 x 36	48 x 48	30 x 30
Utility Work Ahead	CW21-7	6F.39	36 x 36	48 x 48	30 x 30
Mowers Ahead	CW21-9T	6F.39A	36 x 36	48 x 48	30 x 30
Work Convoy (diamond)	CW21-10T	6F.39B	48 x 48	48 x 48	—
Work Convoy	CW21-10aT	6F.39B	60 x 36	60 x 36	—
X Vehicle Convoy (diamond)	CW21-10bT	6F.39B	48 x 48	48 x 48	—
X Vehicle Convoy (2-line)	CW21-10cT	6F.39B	72 x 36	72 x 36	—
X Vehicle Convoy (3-line)	CW21-10dT	6F.39B	48 x 36	48 x 36	—
Rail Damage Signs	CW21-17T,18T	6F.39C	36 x 36	48 x 48	30 x 30
Blasting Zone Ahead	CW22-1	6F.41	36 x 36	48 x 48	30 x 30
Turn Off 2-Way Radio and Cell Phone	CW22-2	6F.42	42 x 36	42 x 36	—
End Blasting Zone	CW22-3	6F.43	42 x 36	42 x 36	36 x 30
Slow Traffic Ahead	CW23-1	6F.27	48 x 24	48 x 24	—
New Traffic Pattern Ahead	CW23-2	6F.30	36 x 36	48 x 48	30 x 30
Double Reverse Curve (1 lane)	CW24-1	6F.49	36 x 36	48 x 48	30 x 30
Double Reverse Curve (2 lanes)	CW24-1a	6F.49	36 x 36	48 x 48	30 x 30
Double Reverse Curve (3 lanes)	CW24-1b	6F.49	36 x 36	48 x 48	30 x 30
All Lanes	CW24-1cP	6F.49	24 x 18	30 x 24	—
Use Next Ramp	CW25-1T	6F.49A	48 x 48	48 x 48	—
Exit Closed	CW26-1T	6F.28	—	96 x 24	—
Trucks Entering Roadway	CW27-1T	6F.36	—	48 x 48	—
Road Work Next XX Miles	G20-1T	6F.56	48 x 18	60 x 24	48 x 18
Road Work Next X Miles (Rt. & Lt.)	G20-1aT	6F.56	72 x 36	72 x 36	—
Road Work Next X Miles (Rt. or Lt.)	G20-1bT	6F.56	72 x 24	72 x 24	—
End Road Work	G20-2	6F.57	36 x 18	48 x 24	—
End Work Zone	G20-2bT	6F.56A	36 x 18	48 x 24	—
Pilot Car Follow Me	G20-4	6F.58	36 x 18	—	—
Work Zone (plaque)	G20-5aP	6F.12	24 x 18	36 x 24	—
Begin Road Work Next X Miles	G20-5T	6F.56A	48 x 24	48 x 24	—
Contractor Sign	G20-6T	6F.58A	48 x 30	48 x 30	—
Give Us a Brake	G20-7T	6F.58B	—	96 x 48	—

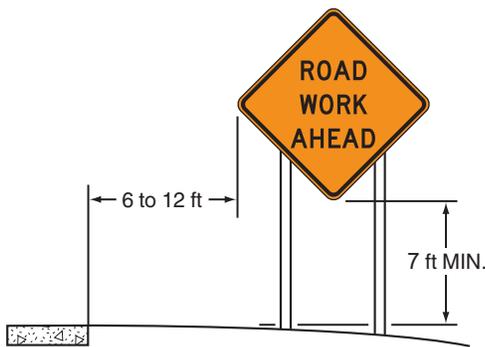
Table 6F-1. Temporary Traffic Control Zone Sign and Plaque Sizes (Sheet 4 of 4)

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway	Minimum
Begin Work Zone (Plaque)	G20-9TP	6F.56A	24 x 24	36 x 30	—
Exit Open	E5-2	6F.28	48 x 36	48 x 36	—
Exit Closed	E5-2a	6F.28	48 x 36	48 x 36	—
Exit Only	E5-3	6F.29	48 x 36	48 x 36	—
Detour	M4-8	6F.59	24 x 12	30 x 15	—
End Detour	M4-8a	6F.59	24 x 18	24 x 18	—
End	M4-8b	6F.59	24 x 12	24 x 12	—
Detour	M4-9	6F.59	30 x 24	48 x 36	—
Bike/Pedestrian Detour	M4-9a	6F.59	30 x 24	—	—
Pedestrian Detour	M4-9b	6F.59	30 x 24	—	—
Bike Detour	M4-9c	6F.59	30 x 24	—	—
Detour	M4-10	6F.59	48 x 18	—	—
Temporary (Plaque)	M4-11TP	6F.59A	—	60 x 30	—

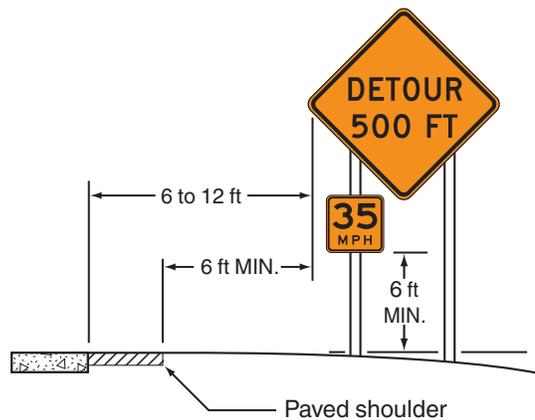
* See Table 2B-1 for minimum size required for signs facing traffic on multi-lane conventional roads

Notes: 1. Larger signs may be used wherever necessary for greater legibility or emphasis, or on roads with higher prevailing speeds.
 2. Dimensions are shown in inches and are shown as width x height

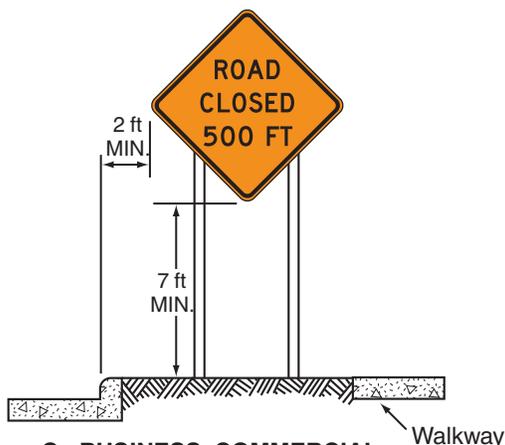
Figure 6F-1. Height and Lateral Location of Signs—Typical Installations



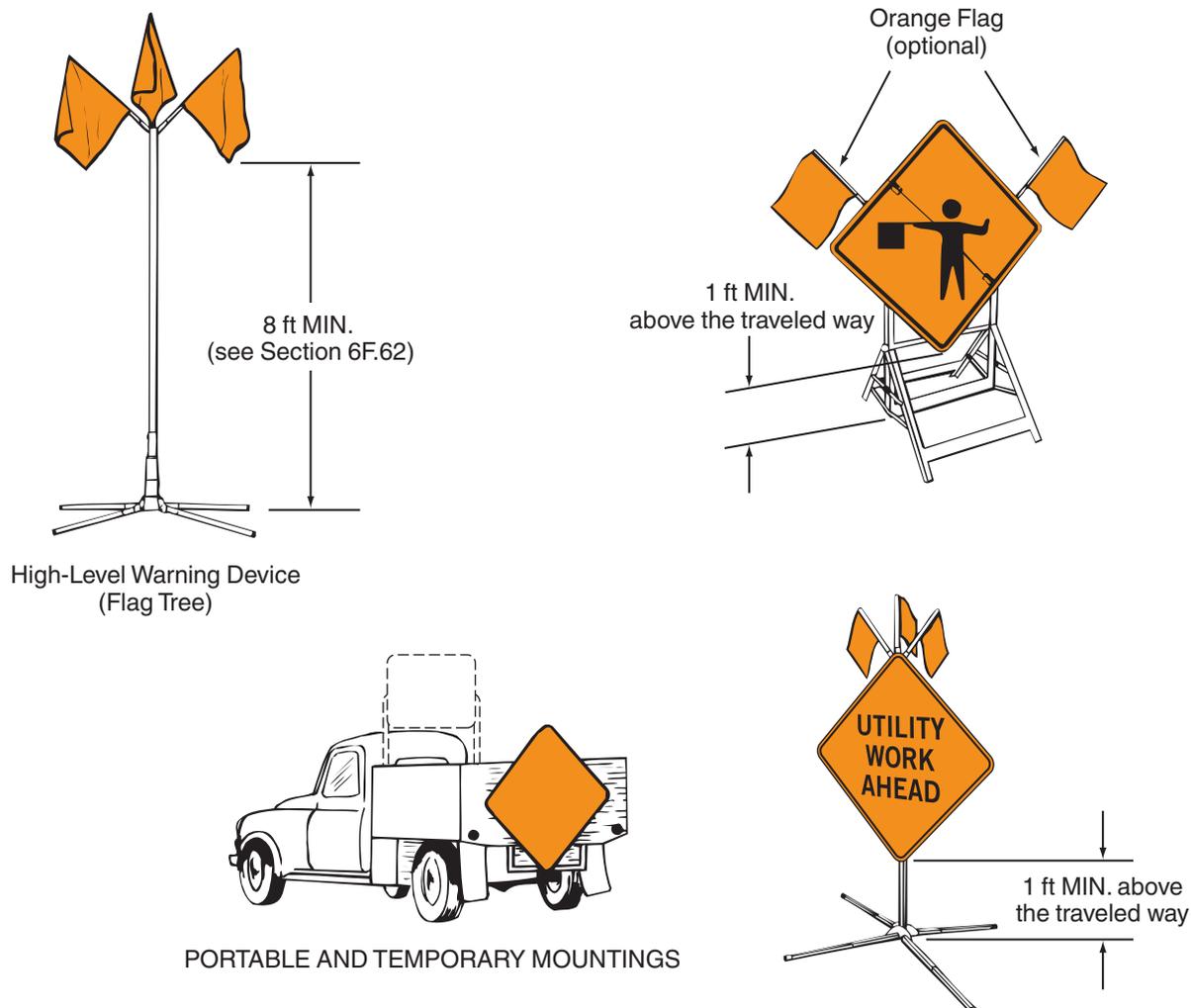
A - RURAL AREA OR BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA (WITHOUT CURB)



B - RURAL AREA WITH ADVISORY SPEED PLAQUE



C - BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

Figure 6F-2. Methods of Mounting Signs Other Than on Posts**Option:**

- 07 The height to the bottom of a secondary sign mounted below another sign may be 1 foot less than the height provided in Paragraphs 4 through 6.

Guidance:

- 08 Neither portable nor permanent sign supports should be located on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway (see Section 6D.02), the secondary sign should not project more than 4 inches into the pedestrian facility.

Standard:

- 09 Where it has been determined that the accommodation of pedestrians with disabilities is necessary, signs shall be mounted and placed in accordance with Section 4.4 of the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)” (see Section 1A.11).

- 10 Signs mounted on barricades and barricade/sign combinations shall be crashworthy.

Guidance:

- 11 Except as provided in Paragraph 12, signs mounted on portable sign supports that do not meet the minimum mounting heights provided in Paragraphs 4 through 6 should not be used for intermediate term stationary or long term stationary TTC zones.

Option:

- 12 The R9-8 through R9-11a series, R11 series, W1-6 through W1-8 series, M4-10, E5-1, or other similar type signs (see Figures 6F-3, 6F-4, and 6F-5) may be used on portable sign supports that do not meet the minimum

mounting heights provided in Paragraphs 4 through 6 for intermediate term stationary or long term stationary TTC zones.

Support:

- 13 Methods of mounting signs other than on posts are illustrated in Figure 6F-2.

Guidance:

- 14 *Signs mounted on Type 3 Barricades should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.*

Standard:

- 15 **Sign supports shall be crashworthy. Where large signs having an area exceeding 50 square feet are installed on multiple breakaway posts, the clearance from the ground to the bottom of the sign shall be at least 7 feet.**

- 16 **The bottom of a sign mounted on a barricade, or other portable support, shall be at least 1 foot above the traveled way.**

Option:

- 17 For mobile operations, a sign may be mounted on a work vehicle, a shadow vehicle, or a trailer stationed in advance of the TTC zone or moving along with it.

Support:

- 18 If alterations are made to specific traffic control device supports that have been successfully crash tested in accordance with NCHRP Report 350 or AASHTO's Manual for Assessing Safety Hardware, the altered supports might not be considered to be crashworthy.

Section 6F.04 Sign Maintenance

Guidance:

- 01 *Signs should be properly maintained for cleanliness, visibility, and correct positioning.*

- 02 *Signs that have lost significant legibility should be promptly replaced.*

Support:

- 03 Section 2A.08 contains information regarding the retroreflectivity of signs, including the signs that are used in TTC zones.

- 04 Guides have been developed to assist in determining when a traffic control device has outlived its use fullness such as the "Quality Guidelines for Temporary Traffic Control Devices" published by the American Traffic Safety Services Association (ATSSA).

Section 6F.05 Regulatory Sign Authority

Support:

- 01 Regulatory signs such as those shown in Figure 6F-3 inform road users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent.

Standard:

- 02 **Regulatory signs shall be authorized by the public agency or official having jurisdiction and shall conform with Chapter 2B.**

Section 6F.06 Regulatory Sign Design

Standard:

- 01 **TTC regulatory signs shall comply with the Standards for regulatory signs presented in Part 2 and in the FHWA's "Standard Highway Sign Designs for Texas" book (see Section 1A.11).**

Support:

- 02 Regulatory signs are generally rectangular with a black legend and border on a white background. Exceptions include the STOP, YIELD, DO NOT ENTER, WRONG WAY, and ONE WAY signs.

Option:

- 03 The ONE WAY sign may be either a horizontal or vertical rectangular sign.

Section 6F.07 Regulatory Sign Applications

Standard:

- 01 **If a TTC zone requires regulatory measures different from those existing, the existing permanent regulatory devices shall be removed or covered and superseded by the appropriate temporary regulatory**

Figure 6F-3. Regulatory Signs and Plaques in Temporary Traffic Control Zones
(Sheet 1 of 1)

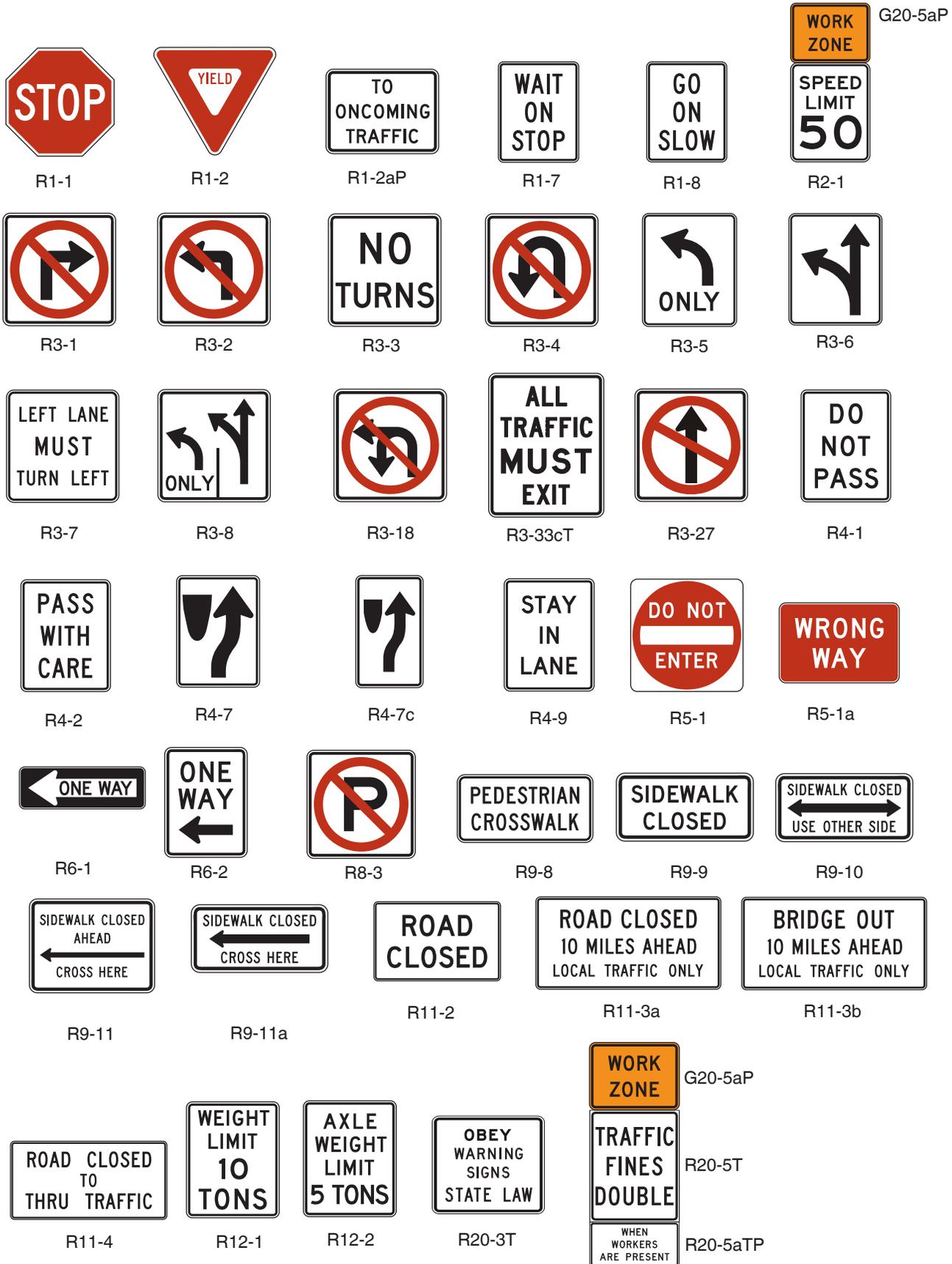
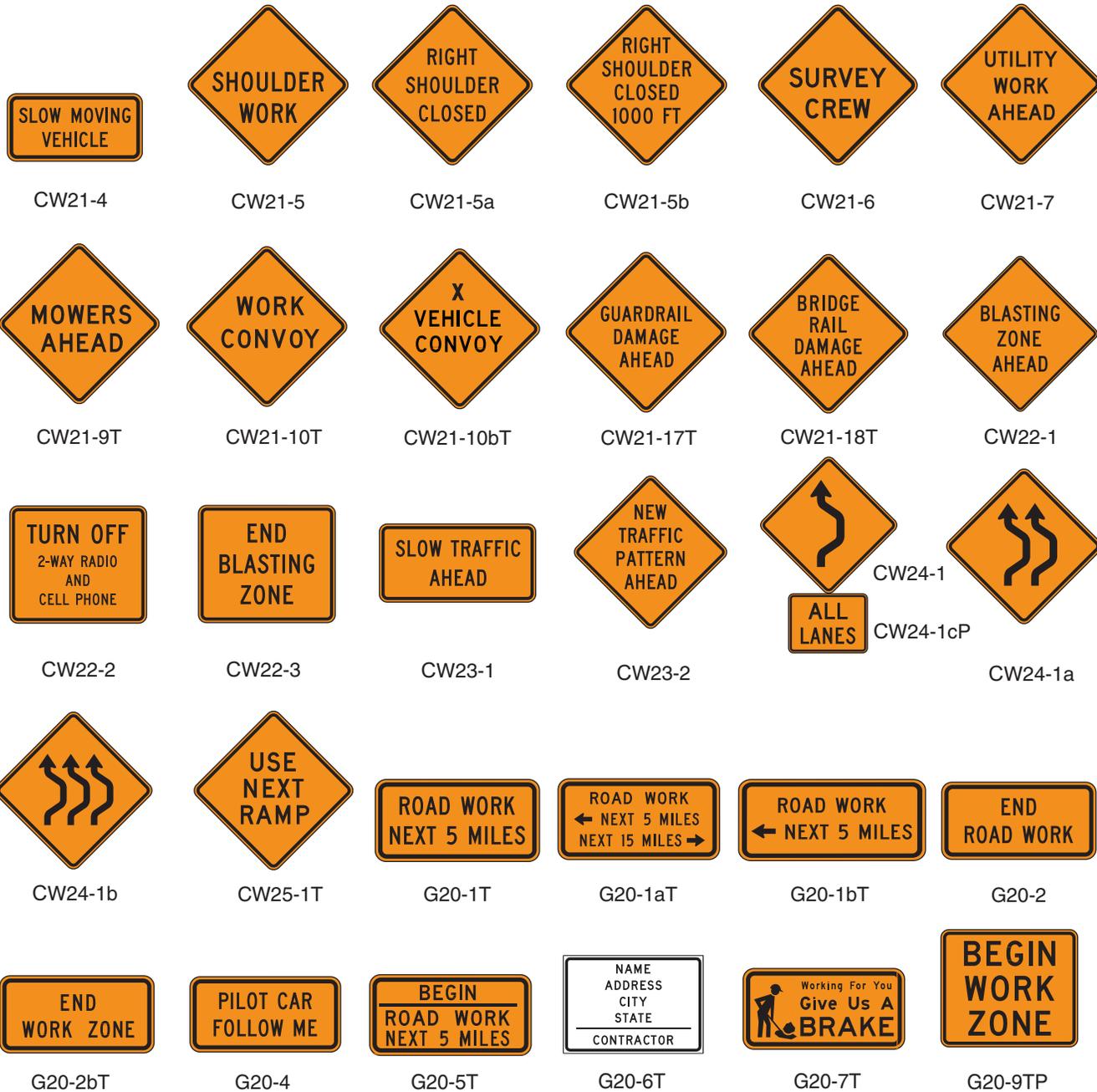


Figure 6F-4. Warning Signs and Plaques in Temporary Traffic Control Zones
(Sheet 2 of 3)



* An optional STREET WORK word message sign is shown in the "Standard Highway Sign Designs for Texas" book.
 ** An optional STREET CLOSED word message sign is shown in the "Standard Highway Sign Designs for Texas" book.
 *** An optional FLAGGER (CW20-7a) word message sign is shown in the "Standard Highway Sign Designs for Texas" book.
 **** An optional FRESH TAR word message sign is shown in the "Standard Highway Sign Designs for Texas" book.
 ***** An optional WORKERS word message sign is shown in the "Standard Highway Sign Designs for Texas" book.

Figure 6F-4. Warning Signs and Plaques in Temporary Traffic Control Zones (Sheet 3 of 3)



Guidance:

- 07 Utility, maintenance, and minor construction signing and TTC should be coordinated with appropriate authorities so that road users are not confused or misled by the additional TTC devices.

Section 6F.18 ROAD (STREET) WORK Sign (CW20-1)

Guidance:

- 01 The ROAD (STREET) WORK (CW20-1) sign (see Figure 6F-4), which serves as a general warning of obstructions or restrictions, should be located in advance of the work space or any detour, on the road where the work is taking place.
- 02 Where traffic can enter a TTC zone from a crossroad or a major (high-volume) driveway, an advance warning sign should be used on the crossroad or major driveway.

Standard:

- 03 **The ROAD (STREET) WORK (CW20-1) sign shall have the legend ROAD (STREET) WORK, XX FEET, XX MILES, or AHEAD.**

Option:

- 04 Other first line alternate legends, such as SIGN, SIGNAL, BRIDGE and RAMP, may be used for the CW21-1 sign.

Section 6F.19 DETOUR Sign (CW20-2)*Guidance:*

- 01 *The DETOUR (CW20-2) sign (see Figure 6F-4) should be used in advance of a road user detour over a different roadway or route.*

Standard:

- 02 **The DETOUR sign shall have the legend DETOUR, XX FEET, XX MILES, or AHEAD.**

Section 6F.20 ROAD (STREET) CLOSED Sign (CW20-3)*Guidance:*

- 01 *The ROAD (STREET) CLOSED (CW20-3) sign (see Figure 6F-4) should be used in advance of the point where a highway is closed to all road users, or to all but local road users.*

Standard:

- 02 **The ROAD (STREET) CLOSED sign shall have the legend ROAD (STREET) CLOSED, XX FEET, XX MILES, or AHEAD.**

Option:

- 03 Other first line alternate legends, such as RAMP and FRWY, may be used for the CW20-3 sign.

Section 6F.21 ONE LANE ROAD Sign (CW20-4)**Standard:**

- 01 **The ONE LANE ROAD (CW20-4) sign (see Figure 6F-4) shall be used only in advance of that point where motor vehicle traffic in both directions must use a common single lane (see Section 6C.10). It shall have the legend ONE LANE ROAD, XX FEET, XX MILES, or AHEAD.**

Section 6F.22 Lane(s) Closed Signs (CW20-5, CW20-5a, CW20-5T, CW20-5aT)**Standard:**

- 01 **The Lane(s) Closed sign (see Figure 6F-4) shall be used in advance of that point where one or more through lanes of a multi-lane roadway are closed.**

- 02 **Except as noted in paragraph 03, for a single lane closure, the Lane Closed (CW20-5) sign (see Figure 6F-4) shall have the legend RIGHT (LEFT) LANE CLOSED, XX FEET, XX MILES, or AHEAD. Where two adjacent lanes are closed, the CW20-5a sign (see Figure 6F-4) shall have the legend XX RIGHT (LEFT) LANES CLOSED, XX FEET, XX MILES, or AHEAD.**

Option:

- 03 For a single lane closure, the Lane Closed (CW20-5T) sign (see Figure 6F-4,) may have the legend RIGHT (LEFT) LANE CLOSED or CENTER LANE CLOSED (see Section 6F.23). Where two adjacent lanes are closed, the CW20-5aT sign (see Figure 6F-4) may have the legend 2 RIGHT (LEFT) LANES CLOSED. When this "Option" is used the word "AHEAD" may be omitted from the sign face.

Guidance:

- 04 *When the option in paragraph 03 is used a distance legend should be displayed on a supplemental plaque below these signs.*

Section 6F.22A LANE BLOCKED Sign (CW20-6T)**Option:**

- 01 When a lane(s) of a one-way multi-lane road are closed, but the CW20-5T RIGHT (LEFT, CENTER) LANE CLOSED, or the CW20-5aT 2 RIGHT (LEFT) LANES CLOSED signs may not adequately convey the conditions of the TTC zone the LANE BLOCKED 1 2 3 4 (CW20-6T) sign (see Figure 6F-4) may be used in lieu of, or to supplement other lane closed signing.

Support:

- 02 An "X" is placed below the number of the lane(s) blocked. For example, on a one-way roadway with four lanes, if the interior lane adjacent to the right lane is closed, the "X" will be placed under the number "3".

Standard:

- 03 **The number of digits (1, 2, 3, and 4) on the LANE BLOCKED sign shall not be greater than the number of lanes present on the roadway.**

Option:

- 04 The LANE BLOCKED 1 2 3 4 sign may be used in repetition or in conjunction with other construction signs.
- 05 The LANE BLOCKED 1 2 3 4 sign may be ground mounted or used on moving operations. When used on moving operations, it may be mounted on vehicles or trailers in the convoy.

Section 6F.23 CENTER LANE CLOSED Sign (CW9-3T)*Guidance:*

- 01 *The CENTER LANE CLOSED (CW9-3T) sign (see Figure 6F-4) should be used in advance of that point where work occupies the center lane(s) and approaching motor vehicle traffic is directed to the right or left of the work zone in the center lane.*

Section 6F.23A NARROW LANES AHEAD Sign (CW20-8T)**Option:**

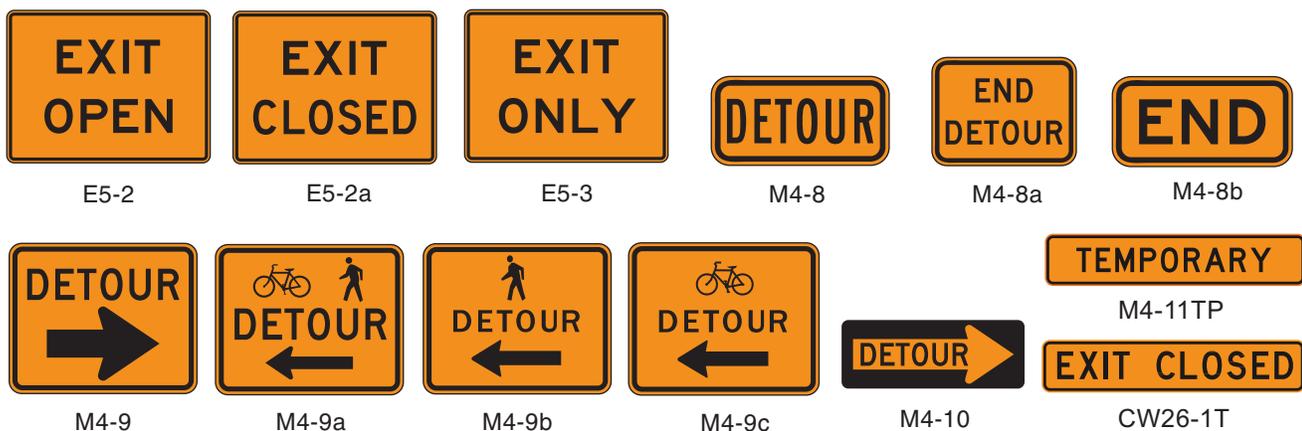
- 01 The NARROW LANES AHEAD (CW20-8T) sign (see Figure 6F-4) may be used where the travel lane width is reduced to less than 11 feet. For multilane one-way or divided roadways, solid white line pavement markings may be used to separate the travel lanes and discourage lane changes.

Section 6F.24 Lane Ends Sign (CW4-2)**Option:**

- 01 The Lane Ends (CW4-2) symbol sign (see Figure 6F-4) 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.

Section 6F.24A THRU TRAFFIC MERGE LEFT (RIGHT) Sign (CW4-1aT)*Guidance:*

- 01 *The THRU TRAFFIC MERGE LEFT (RIGHT) (CW4-1aT) sign (see Figure 6F-4) should be used in advance of an intersection where one or more lane closures on the far side of a multi-lane intersection require through vehicular traffic on the approach to the intersection to use the left (right) lane to proceed through the intersection.*

Figure 6F-5. Exit Open and Closed and Detour Signs

Section 6F.24B Upward Sloping Arrow Sign (CW1-6aT)

Option:

- 01 The UPWARD SLOPING ARROW (CW1-6aT) sign (see Figure 6F-4) may be used to indicate or delineate a curve or transition near the beginning of the change in horizontal alignment or in line with and approximately at a right angle to approaching traffic.

Guidance:

- 02 *The CW1-6aT sign should not be used in lieu of a flashing arrow board in conditions where a flashing arrow board is indicated by other sections of this manual.*

Section 6F.25 ON RAMP Plaque (CW13-4P)

Guidance:

- 01 *When work is being done on a ramp, but the ramp remains open, the ON RAMP (CW13-4P) plaque (see Figure 6F-4) should be used to supplement the advance ROAD WORK sign.*

Section 6F.26 RAMP NARROWS Sign (CW5-4)

Guidance:

- 01 *The RAMP NARROWS (CW5-4) sign (see Figure 6F-4) 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 6F.27 SLOW TRAFFIC AHEAD Sign (CW23-1)

Option:

- 01 The SLOW TRAFFIC AHEAD (CW23-1) sign (see Figure 6F-4) 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 (CW20-1) sign may also be used with the SLOW TRAFFIC AHEAD sign.

Section 6F.28 EXIT OPEN and EXIT CLOSED Signs (E5-2, E5-2a, CW26-1T)

Option:

- 01 An EXIT OPEN (E5-2) or EXIT CLOSED (E5-2a) (CW26-1T) sign (see Figure 6F-5) 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.

Guidance:

- 02 *When an exit ramp is closed, an EXIT CLOSED (CW26-1T) sign panel with a black legend and border on an orange background should be placed diagonally across the interchange/intersection guide signs.*

Section 6F.29 EXIT ONLY Sign (E5-3)

Option:

- 01 An EXIT ONLY (E5-3) sign (see Figure 6F-5) 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 6F.30 NEW TRAFFIC PATTERN AHEAD Sign (CW23-2)

Option:

- 01 A NEW TRAFFIC PATTERN AHEAD (CW23-2) sign (see Figure 6F-4) 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:

- 02 *To retain its effectiveness, the CW23-2 sign should be displayed for up to 2 weeks, and then it should be covered or removed until it is needed again.*

Section 6F.31 Flagger Signs (CW20-7, CW20-7a)

Guidance:

- 01 *The Flagger (CW20-7) symbol sign (see Figure 6F-4) should be used in advance of any point where a flagger is stationed to control road users.*

Option:

- 02 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 (CW3-4) sign (see Figure 6F-4).
- 03 The FLAGGER (CW20-7a) word message sign with distance legends may be substituted for the Flagger (CW20-7) symbol sign.

Section 6F.32 Two-Way Traffic Sign (CW6-3)**Guidance:**

- 01 When one roadway of a normally divided highway is closed, with two-way vehicular traffic maintained on the other roadway, the Two-Way Traffic (CW6-3) sign (see Figure 6F-4) 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 6F.33 Workers Signs (CW21-1aT, CW21-1bT)**Option:**

- 01 A Workers (CW21-1aT) symbol sign (see Figure 6F-4) may be used to alert road users of workers in or near the roadway.

Guidance:

- 02 In the absence of other warning devices, a Workers symbol sign should be used when workers are in the roadway.

Option:

- 03 The WORKERS AHEAD (CW21-1bT) word message sign may be used as an alternate to the Workers (CW21-1aT) symbol sign.

Section 6F.34 FRESH OIL (TAR) Sign (CW21-2)**Guidance:**

- 01 The FRESH OIL (TAR) (CW21-2) sign (see Figure 6F-4) should be used to warn road users of the surface treatment.

Section 6F.35 ROAD MACHINERY AHEAD Sign (CW21-3)**Option:**

- 01 The ROAD MACHINERY AHEAD (CW21-3) sign (see Figure 6F-4) may be used to warn of machinery operating in or adjacent to the roadway.

Section 6F.36 Motorized Traffic Signs (CW8-6, CW11-10, CW27-1T)**Option:**

- 01 Motorized Traffic (CW8-6, CW11-10, CW27-1T) 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 (CW8-6) or the TRUCKS ENTERING ROADWAY (CW27-1T) word message signs may be used as an alternate to the Truck Crossing (CW11-10) symbol sign (see Figure 6F-4) where there is an established construction vehicle crossing of the roadway.

Support:

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

Section 6F.37 Shoulder Work Signs (CW21-5, CW21-5a, CW21-5b)**Support:**

- 01 Shoulder Work signs (see Figure 6F-4) warn of maintenance, reconstruction, or utility operations on the highway shoulder where the roadway is unobstructed.

Standard:

- 02 The Shoulder Work sign shall have the legend SHOULDER WORK (CW21-5), RIGHT (LEFT) SHOULDER CLOSED (CW21-5a), or RIGHT (LEFT) SHOULDER CLOSED XX FT or AHEAD (CW21-5b).

Option:

- 03 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:

- 04 *On freeways and expressways, the RIGHT (LEFT) SHOULDER CLOSED XX FT or AHEAD (CW21-5b) sign followed by RIGHT (LEFT) SHOULDER CLOSED (CW21-5a) sign should be used in advance of the point where the shoulder work occurs and should be preceded by a ROAD WORK AHEAD sign.*

Option:

- 05 A RIGHT (LEFT) SHOULDER CLOSED (CW21-5a) sign with a supplemental distance plaque mounted underneath may be used in place of the RIGHT (LEFT) SHOULDER CLOSED XX FT or AHEAD (CW21-5b) sign.

Section 6F.37A Distance Plaques (CW16-2P, CW16-2aP or CW16-3aP)

Option:

- 01 In combination with a warning sign, a Distance (CW16-2P, CW16-2aP or CW16-3aP) plaque (see Figure 6F-4) may be used to indicate the length of highway before the activity is being conducted in the TTC zone.

Standard:

- 02 **The Distance plaques 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, these plaques shall have a black legend and border on an orange background.**

Guidance:

- 03 *When used, these plaques should be placed below the warning sign designating that, within the approaching zone, a temporary work activity or condition exists.*

Section 6F.38 SURVEY CREW Sign (CW21-6)

Guidance:

- 01 *The SURVEY CREW (CW21-6) sign (see Figure 6F-4) should be used to warn of surveying crews working in or adjacent to the roadway.*

Option:

- 02 A distance legend may be displayed on a supplemental plaque below the SURVEY CREW (CW21-6) sign.

Section 6F.39 UTILITY WORK Sign (CW21-7)

Option:

- 01 The UTILITY WORK (CW21-7) sign (see Figure 6F-4) may be used as an alternate to the ROAD (STREET) WORK (CW20-1) sign for utility operations on or adjacent to a highway.

Support:

- 02 Typical examples of where the UTILITY WORK sign is used appear in Figures 6H-4, 6H-6, 6H-10, 6H-15, 6H-18, 6H-21, 6H-22, 6H-26, and 6H-33.

Standard:

- 03 **The UTILITY WORK sign shall carry the legend UTILITY WORK, XX FEET, XX MILES, or AHEAD.**

Section 6F.39A MOWERS AHEAD Sign (CW21-9T)

Option:

- 01 The MOWERS AHEAD (CW21-9T) sign (see Figure 6F-4) may be used in advance of mowing operations or other vegetation management machinery operated near or off the roadway. Mowing operations are generally mobile, therefore the sign may be mounted on portable supports.

Section 6F.39B WORK CONVOY Signs (CW21-10T, CW21-10aT, CW21-10bT, CW21-10cT, and CW21-10dT)

Option:

- 01 The WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) sign (see Figure 6F-4) may be used for moving operations and may be mounted on vehicles or trailers in a convoy. When mounting or space considerations justify a change from the standard diamond shape the rectangular versions (CW21-10aT, CW21-10cT, and CW21-10dT) of these signs may be used.

Standard:

- 02 When used, the X VEHICLE CONVOY (CW21-10bT) sign shall have the number of convoy vehicles displayed on the sign in the number designation "X" location.

Section 6F.39C Rail Damage Signs (CW21-17T, CW21-18T)

Option:

- 01 A BRIDGE RAIL DAMAGE AHEAD (CW21-17T) or GUARDRAIL DAMAGE AHEAD (CW21-18T) sign (see Figure 6F-4) may be used in advance of a damaged section of bridge rail, guardrail or at the first location available where the travel lanes will not be restricted by the sign. On long bridge structures where the sign and the damaged section are more than about one-half mile apart, it may be desirable to attach the sign to the bridge rail rather than in advance of the structure.

Section 6F.40 SIGNS FOR BLASTING AREAS

Support:

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

Standard:

- 02 Road users shall be warned to turn off mobile radio transmitters and cellular telephones where blasting operations occur. A sequence of signs shall be prominently displayed to direct 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.

Section 6F.41 BLASTING ZONE AHEAD Sign (CW22-1)

Standard:

- 01 The BLASTING ZONE AHEAD (CW22-1) sign (see Figure 6F-4) shall be used in advance of any TTC zone where explosives are being used. The TURN OFF 2-WAY RADIO AND CELL PHONE and END BLASTING ZONE signs shall be used in sequence with this sign.

Section 6F.42 TURN OFF 2-WAY RADIO AND CELL PHONE Sign (CW22-2)

Standard:

- 01 The TURN OFF 2-WAY RADIO AND CELL PHONE (CW22-2) sign (see Figure 6F-4) shall follow the BLASTING ZONE AHEAD sign and shall be placed at least 1,000 feet before the beginning of the blasting zone.

Section 6F.43 END BLASTING ZONE Sign (CW22-3)

Standard:

- 01 The END BLASTING ZONE (CW22-3) sign (see Figure 6F-4) shall be placed a minimum of 1,000 feet past the blasting zone.

Option:

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

Section 6F.44 Shoulder Signs and Plaque (CW8-4, CW8-9, CW8-17, and CW8-17P)

Option:

- 01 The SOFT SHOULDER (CW8-4) sign (see Figure 6F-4) may be used to warn of a soft shoulder condition.

Standard:

- 11 **Warning lights shall flash when placed on channelizing devices used alone or in a cluster to warn of a condition. Except for the sequential flashing warning lights discussed in Paragraphs 12 and 13, warning lights placed on channelizing devices used in a series to channelize road users shall be steady-burn.**

Option:

- 12 A series of sequential flashing warning lights may be placed on channelizing devices that form a merging taper in order to increase driver detection and recognition of the merging taper.

Standard:

- 13 **When used, the successive flashing of the sequential warning lights shall occur from the upstream end of the merging taper to the downstream end of the merging taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55 nor more than 75 times per minute.**

- 14 **The retroreflective material used on channelizing devices shall have a smooth, sealed outer surface that will display a similar color day or night.**

Option:

- 15 The name and telephone number of the highway agency, contractor, or supplier may be displayed on the non-retroreflective surface of all types of channelizing devices.

Standard:

- 16 **The letters and numbers of the name and telephone number shall be non-retroreflective and not over 2 inches in height.**

Guidance:

- 17 *Particular attention should be given to maintaining the channelizing devices to keep them clean, visible, and properly positioned at all times. Fragments or other debris from the device or the ballast should not pose a significant hazard to road users or workers.*

Standard:

- 18 **Devices that are damaged or have lost a significant amount of their retroreflectivity and effectiveness shall be replaced.**

Section 6F.64 Cones**Standard:**

- 01 **Cones (see Figure 6F-7) shall be predominantly orange and shall be made of a material that can be struck without causing damage to the impacting vehicle. For daytime and low-speed roadways, cones shall be not less than 18 inches in height. When cones are used on freeways and other high-speed highways or at night on all highways, or when more conspicuous guidance is needed, cones shall be a minimum of 28 inches in height.**

- 02 **For nighttime use, cones shall be retroreflectorized or equipped with lighting devices for maximum visibility. Retroreflectorization of cones that are 28 to 36 inches in height shall be provided by a 6-inch wide white band located 3 to 4 inches from the top of the cone and an additional 4-inch wide white band located approximately 2 inches below the 6-inch band.**

- 03 **Retroreflectorization of cones that are more than 36 inches in height shall be provided by horizontal, circumferential, alternating orange and white retroreflective stripes that are 4 to 6 inches wide. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any non-retroreflective spaces between the orange and white stripes shall not exceed 3 inches in width.**

Option:

- 04 Traffic cones may be used to channelize road users, divide opposing vehicular traffic lanes, divide lanes when two or more lanes are kept open in the same direction, and delineate short duration maintenance and utility work.

Guidance:

- 05 *Steps should be taken to minimize the possibility of cones being blown over or displaced by wind or moving vehicular traffic.*

Option:

- 06 Cones may be doubled up to increase their weight.

Support:

- 07 Some cones are constructed with bases that can be filled with ballast. Others have specially weighted bases, or weight such as sandbag rings that can be dropped over the cones and onto the base to provide added stability.

Guidance:

- 08 *Ballast should be kept to the minimum amount needed.*

Section 6F.65 Tubular Markers**Standard:**

- 01 **Tubular markers (see Figure 6F-7) shall be predominantly orange and shall be not less than 18 inches high and 2 inches wide facing road users. They shall be made of a material that can be struck without causing damage to the impacting vehicle.**
- 02 **Tubular markers shall be a minimum of 28 inches in height when they are used on freeways and other high-speed highways, on all highways during nighttime, or whenever more conspicuous guidance is needed.**
- 03 **For nighttime use, tubular markers shall be retroreflectorized. Retroreflectorization of tubular markers that have a height of less than 42 inches shall be provided by two 3-inch wide white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands. Retroreflectorization of tubular markers that have a height of 42 inches or more shall be provided by four 4- to 6-inch wide alternating orange and white stripes with the top stripe being orange.**

Guidance:

- 04 *Tubular markers have less visible area than other devices and should be used only where space restrictions do not allow for the use of other more visible devices.*
- 05 *Tubular markers should be stabilized by affixing them to the pavement, by using weighted bases, or weights such as sandbag rings that can be dropped over the tubular markers and onto the base to provide added stability. Ballast should be kept to the minimum amount needed.*

Option

- 06 Tubular markers may be used effectively to divide opposing lanes of road users, divide vehicular traffic lanes when two or more lanes of moving vehicular traffic are kept open in the same direction, and to delineate the edge of a pavement drop off where space limitations do not allow the use of larger devices.

Standard:

- 07 **A tubular marker shall be attached to the pavement to display the minimum 2-inch width to the approaching road users.**

Section 6F.66 Vertical Panels**Standard:**

- 01 **Vertical panels (see Figure 6F-7) shall have retroreflective striped material that is 8 to 12 inches in width and at least 24 inches in height. They shall have alternating diagonal orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass.**
- 02 **Where the height of the retroreflective material on the vertical panel is 36 inches or more, a stripe width of 6 inches shall be used.**

Option:

- 03 Where the height of the retroreflective material on the vertical panel is less than 36 inches, a stripe width of 4 inches may be used.
- 04 Where space is limited, vertical panels may be used to channelize vehicular traffic, divide opposing lanes, or replace barricades.

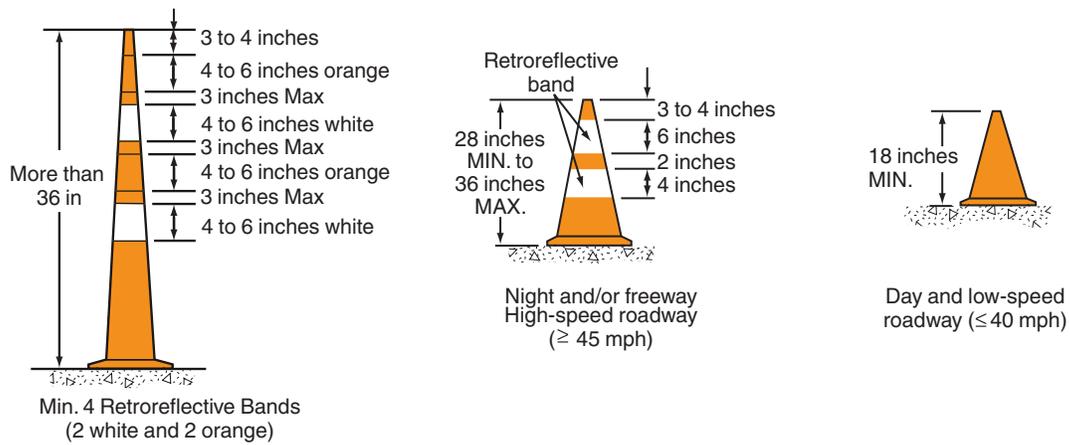
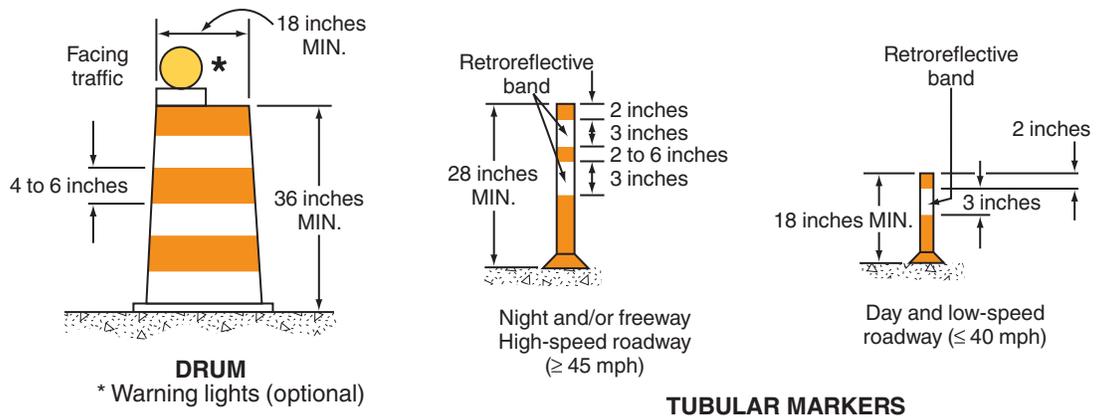
Section 6F.67 Drums**Standard:**

- 01 **Drums (see Figure 6F-7) used for road user warning or channelization shall be constructed of lightweight, deformable materials. They shall be a minimum of 36 inches in height and have at least an 18-inch minimum width regardless of orientation. Metal drums shall not be used. The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4 to 6 inches wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any non-retroreflectorized spaces between the horizontal orange and white stripes shall not exceed 3 inches wide. Drums shall have closed tops that will not allow collection of construction debris or other debris.**

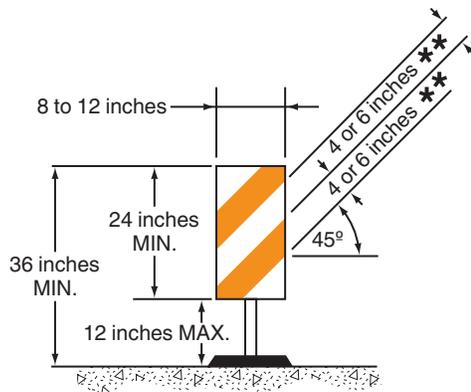
Support:

- 02 Drums are highly visible, have good target value, give the appearance of being formidable obstacles and, therefore, command the respect of road users. They are portable enough to be shifted from place to place within

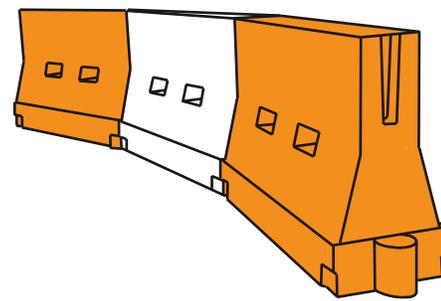
Figure 6F-7. Channelizing Devices
(Sheet 1 of 2)



CONES

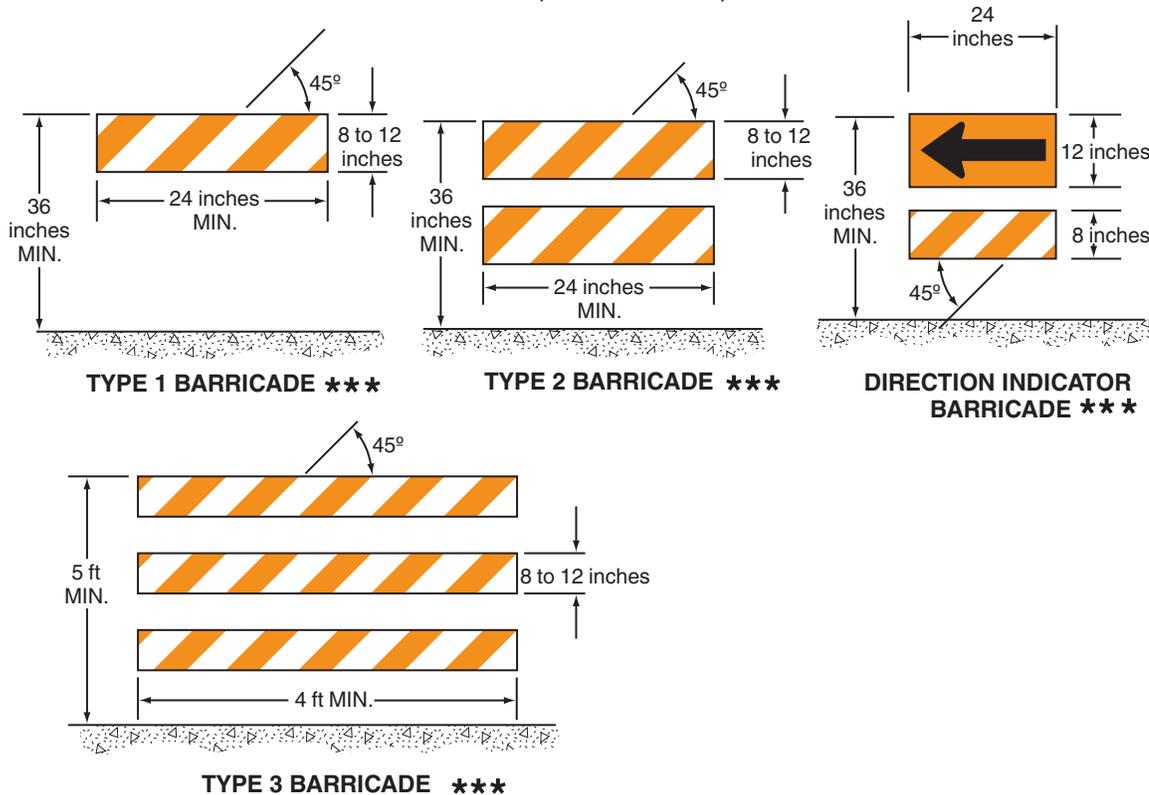


** See Section 6F.66 for stripe width



**LONGITUDINAL CHANNELIZING
DEVICE**

Figure 6F-7. Channelizing Devices
(Sheet 2 of 2)



*** Rail stripe widths shall be 6 inches, except that 4-inch wide stripes may be used if rail lengths are less than 36 inches. The sides of barricades facing traffic shall have retroreflective rail faces.

a TTC zone in order to accommodate changing conditions, but are generally used in situations where they will remain in place for a prolonged period of time.

Option:

- 03 Although drums are most commonly used to channelize or delineate road user flow, they may also be used alone or in groups to mark specific locations.

Guidance:

- 04 *Drums should not be weighted with sand, water, or any material to the extent that would make them hazardous to road users or workers when struck. Drums used in regions susceptible to freezing should have drain holes in the bottom so that water will not accumulate and freeze causing a hazard if struck by a road user.*

Standard:

- 05 **Ballast shall not be placed on the top of a drum.**

Section 6F.68 Type 1, 2, or 3 Barricades

Support:

- 01 A barricade is a portable or fixed device having from one to three rails with appropriate markings and is used to control road users by closing, restricting, or delineating all or a portion of the right-of-way.
- 02 As shown in Figure 6F-7, barricades are classified as Type 1, Type 2, or Type 3.

Standard:

- 03 **Stripes on barricade rails shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Except as provided in Paragraph 4, the stripes shall be 6 inches wide.**

Option:

- 04 When rail lengths are less than 36 inches, 4-inch wide stripes may be used.

CHAPTER 7B. SIGNS

Section 7B.01 Size of School Signs

Standard:

- 01 Except as provided in Section 2A.11, the sizes of signs and plaques to be used on conventional roadways in school areas shall be as shown in Table 7B-1.
- 02 The sizes in the Conventional Road column shall be used unless engineering judgment determines that a minimum or oversized sign size would be more appropriate.
- 03 The sizes in the Minimum column shall be used only where traffic volumes are low and speeds are 30 mph or lower, as determined by engineering judgment.
- 04 The sizes in the Oversized column shall be used on expressways.

Guidance:

- 05 The sizes in the Oversized column should be used on roadways that have four or more lanes with posted speed limits of 40 mph or higher.

Option:

- 06 The sizes in the Oversized column may also be used at other locations that require increased emphasis, improved recognition, or increased legibility.
- 07 Signs and plaques larger than those shown in Table 7B-1 may be used (see Section 2A.11).

Table 7B-1. School Area Sign and Plaque Sizes

Sign	Sign Designation	Section	Conventional Road	Minimum	Oversized
School	S1-1	7B.08	36 x 36	30 x 30	48 x 48
School Bus Stop Ahead	S3-1	7B.13	36 x 36	30 x 30	48 x 48
School Bus Turn Ahead	S3-2	7B.14	36 x 36	30 x 30	48 x 48
Reduced School Speed Limit Ahead	S4-5, S4-5a	7B.16	36 x 36	30 x 30	48 x 48
School Speed Limit XX When Flashing	S5-1	7B.15	24 x 48	—	36 x 72
End School Zone	S5-2	7B.09	24 x 30	—	36 x 48
End School Zone	S5-2aTP	7B.15	24 x 10	—	—
End School Speed Limit	S5-3	7B.15	24 x 30	—	36 x 48
School Speed Limit XX When Flashing	S6-1T	7B.15	84 x 36	—	96 x 48
In-Street Ped Crossing	R1-6 R1-6b	7B.11, 7B.12	12 x 36	—	—
Speed Limit (School Use)	R2-1	7B.15	24 x 30	—	36 x 48

Plaque	Sign Designation	Section	Conventional Road	Minimum	Oversized
X:XX to X:XX AM X:XX to X:XX PM	S4-1P	7B.15	24 x 10	—	36 x 18
When Children Are Present	S4-2P	7B.15	24 x 10	—	36 x 18
School	S4-3P	7B.09, 7B.15	24 x 8	—	36 x 12
When Flashing	S4-4P	7B.15	24 x 10	—	36 x 18
Mon-Fri	S4-6P	7B.15	24 x 10	—	36 x 18
All Year	S4-7P	7B.09	24 x 12	—	30 x 18
Cell Phone Use Prohibited	S7-1T	7B.10	24 x 18 & 36 x 18	—	48 x 36
XX Feet	SW16-2P	7B.08	24 x 18	—	30 x 24
XX Ft	SW16-2aP	7B.08	24 x 12	—	30 x 12
Turn Arrow	SW16-5P	7B.08, 7B.09, 7B.11	24 x 18	—	30 x 24
Advance Turn Arrow	SW16-6P	7B.08, 7B.09, 7B.11	24 x 18	—	30 x 24
Diagonal Arrow	SW16-7P	7B.12	24 x 12	—	30 x 18
Diagonal Arrow (optional size)	SW16-7P	7B.12	21 x 15	—	—
Ahead	SW16-9P	7B.11	24 x 12	—	30 x 18

- Note: 1. Larger sizes may be used when appropriate
 2. Dimensions are shown in inches and are shown as width x height
 3. Minimum sign sizes for multi-lane conventional roads shall be as shown in the Conventional Road column

Section 7B.02 Illumination and Reflectorization**Standard:**

- 01 The signs used for school area traffic control shall be retroreflectorized or illuminated.

Section 7B.03 Position of Signs**Support:**

- 01 Sections 2A.16 and 2A.17 contain provisions regarding the placements and locations of signs.
02 Section 2A.19 contains provisions regarding the lateral offsets of signs.

Option:

- 03 In-roadway signs for school traffic control areas may be used consistent with the requirements of Sections 2B.12, 7B.11, and 7B.12.

Section 7B.04 Height of Signs**Support:**

- 01 Section 2A.18 contains provisions regarding the mounting height of signs.

Section 7B.05 Installation of Signs**Support:**

- 01 Section 2A.16 contains provisions regarding the installation of signs.

Section 7B.06 Lettering**Support:**

- 01 The “Standard Highway Sign Designs for Texas” book (see Section 1A.11) contains information regarding sign lettering.

Section 7B.07 Sign Color for School Warning Signs**Standard:**

- 01 School warning signs, including the “SCHOOL” portion of the School Speed Limit (S5-1) sign and including any supplemental plaques used in association with these warning signs, shall have a fluorescent yellow-green background with a black legend and border unless otherwise provided in this Manual for a specific sign.

Section 7B.08 School Sign (S1-1) and Plaques**Support:**

- 01 Many state and local jurisdictions find it beneficial to advise road users that they are approaching a school that is adjacent to a highway, where additional care is needed, even though no school crossing is involved and the speed limit remains unchanged. It is important and sometimes legally necessary to mark the beginning and end points of these designated school zones so that the road user is given proper notice.
- 02 The School (S1-1) sign (see Figure 7B-1) has the following four applications:
- A. School Area – the S1-1 sign can be used to warn road users that they are approaching a school area that might include school buildings or grounds, a school crossing, or school related activity adjacent to the highway.
 - B. School Zone – the S1-1 sign can be used to identify the location of the beginning of a designated school zone (see Section 7B.09).
 - C. School Advance Crossing – if combined with an AHEAD (SW16-9P) plaque or an XX FEET (SW16-2P or SW16-2aP) plaque to comprise the School Advance Crossing assembly, the S1-1 sign can be used to warn road users that they are approaching a crossing where school children cross the roadway (see Section 7B.11).
 - D. School Crossing – if combined with a diagonal downward pointing arrow (SW16-7P) plaque to comprise the School Crossing assembly, the S1-1 sign can be used to warn approaching road users of the location of a crossing where school children cross the roadway (see Section 7B.12).

Option:

- 03 If a school area is located on a cross street in close proximity to the intersection, a School (S1-1) sign with a supplemental arrow (SW16-5P or SW16-6P) plaque may be installed on each approach of the street or highway to warn road users making a turn onto the cross street that they will encounter a school area soon after making the turn.

Figure 7B-1. School Area Signs

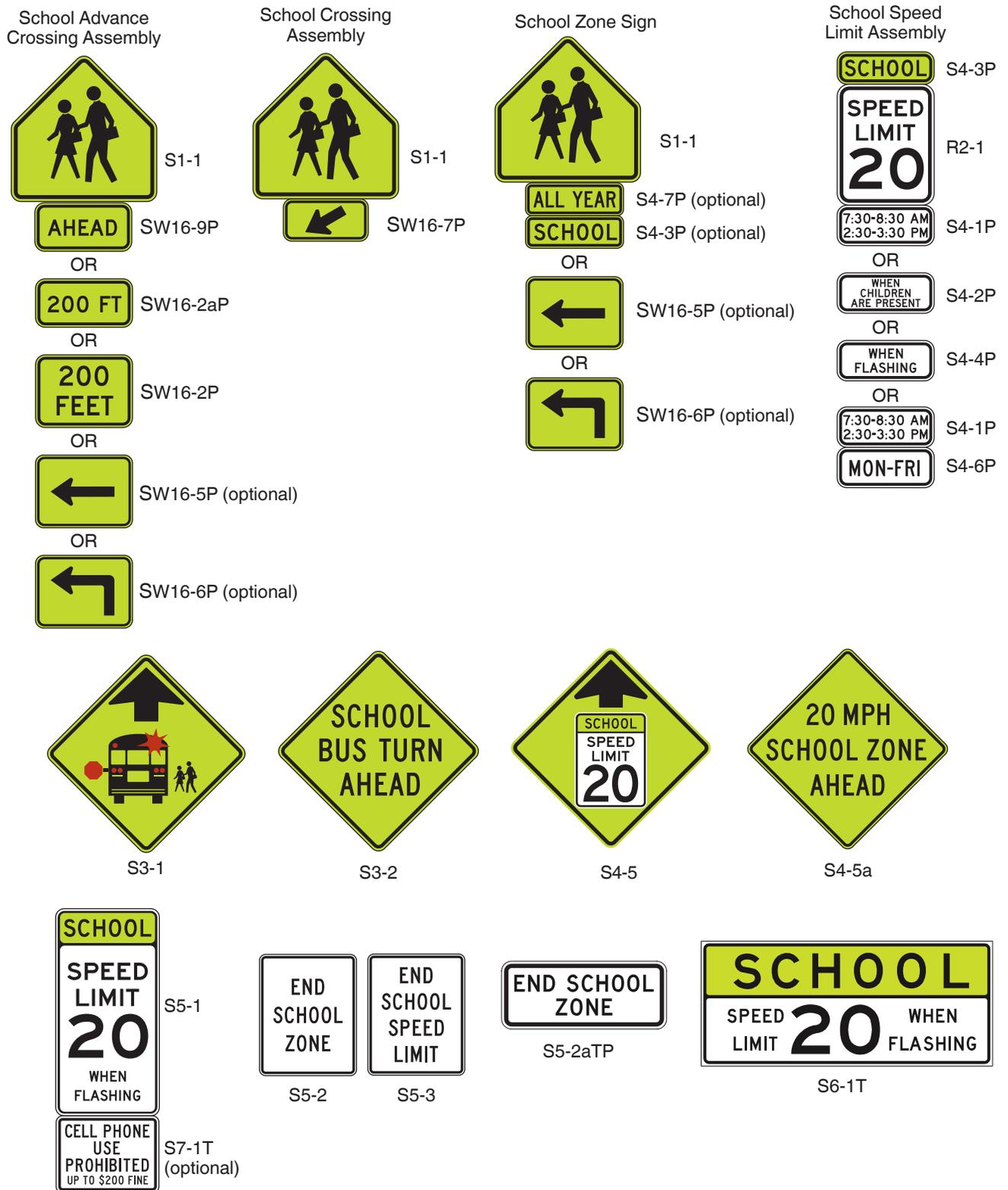


Figure 7B-2. DELETED

Section 7B.09 School Zone Sign (S1-1) and Plaques (S4-3P, S4-7P) and END SCHOOL ZONE Sign (S5-2)

Standard:

- 01 **If a school zone has been designated under State or local statute, a School (S1-1) sign (see Figure 7B-1) shall be installed to identify the beginning point(s) of the designated school zone.**

Option:

- 02 A School Zone (S1-1) sign may be supplemented with a SCHOOL (S4-3P) plaque (see Figure 7B-1).
- 03 A School Zone (S1-1) sign may be supplemented with an ALL YEAR (S4-7P) plaque (see Figure 7B-1) if the school operates on a 12-month schedule.
- 04 The downstream end of a designated school zone may be identified with an END SCHOOL ZONE (S5-2) sign (see Figure 7B-1).
- 05 If a school zone is located on a cross street in close proximity to the intersection, a School Zone (S1-1) sign with a supplemental arrow (SW16-5P or SW16-6P) plaque may be installed on each approach of the street or highway to warn road users making a turn onto the cross street that they will encounter a school zone soon after making the turn.

Section 7B.10 Cell Phone Use Prohibited (S7-1T)

Guidance:

- 01 *If used, the Cell Phone Use Prohibited Sign, S7-1T, should be installed below the ground-mounted school speed limit sign (S5-1) or beside the overhead school speed limit sign (S6-1T) by the municipality, county or other political subdivision responsible for enforcement in that particular area. (See Figure 7B-3).*

Section 7B.11 School Advance Crossing Assembly

Standard:

- 01 **The School Advance Crossing assembly (see Figure 7B-1) shall consist of a School (S1-1) sign supplemented with an AHEAD (SW16-9P) plaque or an XX FEET (SW16-2P or SW16-2aP) plaque.**
- 02 **Except as provided in Paragraph 3, a School Advance Crossing assembly shall be used in advance (see Table 2C-4 for advance placement guidelines) of the first School Crossing assembly (see Section 7B.12) that is encountered in each direction as traffic approaches a school crosswalk (see Figure 7B-4).**

Option:

- 03 The School Advance Crossing assembly may be omitted (see Figure 7B-5) where a School Zone (S1-1) sign (see Section 7B.09) is installed to identify the beginning of a school zone in advance of the School Crossing assembly.
- 04 If a school crosswalk is located on a cross street in close proximity to an intersection, a School Advance Crossing assembly with a supplemental arrow (W16-5P or W16-6P) plaque may be installed on each approach of the street or highway to warn road users making a turn onto the cross street that they will encounter a school crosswalk soon after making the turn.
- 05 A 12-inch reduced size in-street School (S1-1) sign (see Figure 7B-6), installed in compliance with the mounting height and special mounting support requirements for In-Street Pedestrian Crossing (R1-6) signs (see Section 2B.12), may be used in advance of a school crossing to supplement the post-mounted school warning signs. A 12 x 6-inch reduced size AHEAD (SW16-9P) plaque may be mounted below the reduced size in-street School (S1-1) sign.

Section 7B.12 School Crossing Assembly

Standard:

- 01 **If used, the School Crossing assembly (see Figure 7B-1) shall be installed at the school crossing (see Figures 7B-4 and 7B-5), or as close to it as possible, and shall consist of a School (S1-1) sign supplemented with a diagonal downward pointing arrow (SW16-7P) plaque to show the location of the crossing.**
- 02 **The School Crossing assembly shall not be used at crossings other than those adjacent to schools and those on established school pedestrian routes.**
- 03 **The School Crossing assembly shall not be installed on approaches controlled by a STOP or YIELD sign.**

Figure 7B-6. In-Street Signs in School Areas

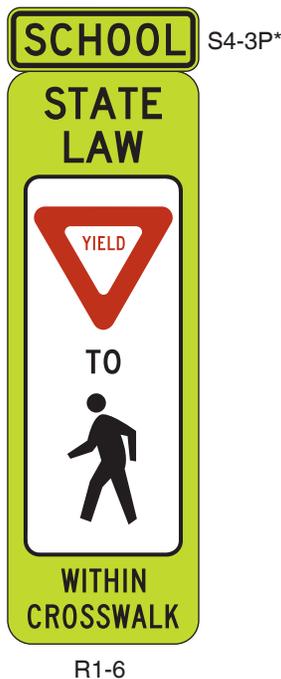
A - In advance of the school crossing



* Reduced size signs:

S1-1	12 x 12 inches
S4-3P	12 x 4 inches
SW16-7P	12 x 6 inches
SW16-9P	12 x 6 inches

B - At the school crossing



OR



OR



Notes:

1. The use of the STATE LAW legend is optional on the R1-6 series signs (see Section 7B.12).
2. The use of the SCHOOL plaque above the R1-6 signs is optional.

Guidance:

05 The beginning point of a reduced school speed limit zone should be at least 200 feet in advance of the school grounds, a school crossing, or other school related activities; however, this 200-foot distance should be increased if the reduced school speed limit is 30 mph or higher.

Standard:

06 The School Speed Limit assembly shall be either a fixed-message sign assembly or a changeable message sign.

07 The fixed-message School Speed Limit assembly shall consist of a top plaque (S4-3P) with the legend SCHOOL, a Speed Limit (R2-1) sign, and a bottom plaque (S4-1P, S4-2P, S4-4P, or S4-6P) indicating the specific periods of the day and/or days of the week that the special school speed limit is in effect (see Figure 7B-1).

Option:

- 08 Changeable message signs (see Chapter 2L and Section 6F.60) may be used to inform drivers of the school speed limit. If the sign is internally illuminated, it may have a white legend on a black background. Changeable message signs with flashing beacons may be used for situations where greater emphasis of the special school speed limit is needed.

Guidance:

- 09 *Even though it might not always be practical because of special features to make changeable message signs conform in all respects to the standards in this Manual for fixed-message signs, during the periods that the school speed limit is in effect, their basic shape, message, legend layout, and colors should comply with the standards for fixed-message signs.*
- 10 *A confirmation light or device to indicate that the speed limit message is in operation should be considered for inclusion on the back of the changeable message sign.*

Standard:

- 11 **Fluorescent yellow-green pixels shall be used when the “SCHOOL” message is displayed on a changeable message sign for a school speed limit.**

Option:

- 12 Changeable message signs may use blank-out messages or other methods in order to display the school speed limit only during the periods it applies.
- 13 Changeable message signs that display the speed of approaching drivers (see Section 2B.13) may be used in a school speed limit zone.
- 14 A Speed Limit Sign Beacon (see Section 4L.04) also may be used, with a WHEN FLASHING legend, to identify the periods that the school speed limit is in effect.
- 15 A confirmation beacon or device to reinforce to the driver that the school speed limit is in operation may be considered for inclusion on the back of the school speed limit assembly.

Standard:

- 16 **If a confirmation beacon or device is used on the back of the school speed limit assembly, it shall be a speed limit sign beacon (see section 4L.04).**

Section 7B.16 Reduced School Speed Limit Ahead Sign (S4-5, S4-5a)**Guidance:**

- 01 *A Reduced School Speed Limit Ahead (S4-5, S4-5a) sign (see Figure 7B-1) should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph, or where engineering judgment indicates that advance notice would be appropriate.*

Standard:

- 02 **If used, the Reduced School Speed Limit Ahead sign shall be followed by a School Speed Limit sign or a School Speed Limit assembly.**
- 03 **The speed limit displayed on the Reduced School Speed Limit Ahead sign shall be identical to the speed limit displayed on the subsequent School Speed Limit sign or School Speed Limit assembly.**

Section 7B.17 Parking and Stopping Signs (R7 and R8 Series)**Option:**

- 01 Parking and stopping regulatory signs may be used to prevent parked or waiting vehicles from blocking pedestrians' views, and drivers' views of pedestrians, and to control vehicles as a part of the school traffic plan.

Support:

- 02 Parking signs and other signs governing the stopping and standing of vehicles in school areas cover a wide variety of regulations. Typical examples of regulations are as follows:
- A. No Parking X:XX AM to X:XX PM School Days Only,
 - B. No Stopping X:XX AM to X:XX PM School Days Only,
 - C. XX Min Loading X:XX AM to X:XX PM School Days Only, and
 - D. No Standing X:XX AM to X:XX PM School Days Only.
- 03 Sections 2B.46, 2B.47, and 2B.48 contain information regarding the signing of parking regulations in school zone areas.

CHAPTER 8B. SIGNS AND MARKINGS

Section 8B.01 Purpose

Support:

- 01 Passive traffic control systems, consisting of signs and pavement markings only, identify and direct attention to the location of a grade crossing and advise road users to slow down or stop at the grade crossing as necessary in order to yield to any rail traffic occupying, or approaching and in proximity to, the grade crossing.
- 02 Signs and markings regulate, warn, and guide the road users so that they, as well as LRT vehicle operators on mixed-use alignments, can take appropriate action when approaching a grade crossing.

Standard:

- 03 **The design and location of signs shall comply with the provisions of Part 2. The design and location of pavement markings shall comply with the provisions of Part 3.**

Section 8B.02 Sizes of Grade Crossing Signs

Standard:

- 01 **The sizes of grade crossing signs shall be as shown in Table 8B-1.**

Option:

- 02 Signs larger than those shown in Table 8B-1 may be used (see Section 2A.11).

Section 8B.03 Grade Crossing (Crossbuck) Sign (R15-1) and Number of Tracks Plaque (R15-2P) at Active and Passive Grade Crossings

Standard:

- 01 **The Grade Crossing (R15-1) sign (see Figure 8B-1), commonly identified as the Crossbuck sign, shall be retroreflectorized white with the words RAILROAD CROSSING in black lettering, mounted as shown in Figure 8B-2.**

Support:

- 02 In most States, the Crossbuck sign requires road users to yield the right-of-way to rail traffic at a grade crossing.

Standard:

- 03 **As a minimum, one Crossbuck sign shall be used on each highway approach to every highway-rail grade crossing, alone or in combination with other traffic control devices.**

Option:

- 04 A Crossbuck sign may be used on a highway approach to a highway-LRT grade crossing on a semi-exclusive or mixed-use alignment, alone or in combination with other traffic control devices.

Standard:

- 05 **If automatic gates are not present and if there are two or more tracks at a grade crossing, the number of tracks shall be indicated on a supplemental Number of Tracks (R15-2P) plaque (see Figure 8B-1) of inverted T shape mounted below the Crossbuck sign in the manner shown in Figure 8B-2.**
- 06 **On each approach to a highway-rail grade crossing and, if used, on each approach to a highway-LRT grade crossing, the Crossbuck sign shall be installed on the right-hand side of the highway on each approach to the grade crossing. Where restricted sight distance or unfavorable highway geometry exists on an approach to a grade crossing, an additional Crossbuck sign shall be installed on the left-hand side of the highway, possibly placed back-to-back with the Crossbuck sign for the opposite approach, or otherwise located so that two Crossbuck signs are displayed for that approach.**
- 07 **A strip of retroreflective white material not less than 2 inches in width shall be used on the back of each blade of each Crossbuck sign for the length of each blade, at all grade crossings where Crossbuck signs have been installed, except those where Crossbuck signs have been installed back-to-back.**

Guidance:

- 08 *Crossbuck signs should be located with respect to the highway pavement or shoulder in accordance with the criteria in Chapter 2A and Figures 2A-2 and 2A-3, and should be located with respect to the nearest track in accordance with Figure 8C-2.*
- 09 *The minimum lateral offset for the nearest edge of the Crossbuck sign should be 6 feet from the edge of the shoulder or 12 feet from the edge of the traveled way in rural areas (whichever is greater), and 2 feet from the face of the curb in urban areas.*

Table 8B-1. Grade Crossing Sign and Plaque Minimum Sizes

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Minimum	Oversized
			Single Lane	Multi-Lane			
Stop	R1-1	8B.04, 8B.05	30 x 30	36 x 36	36 x 36	—	48 x 48
Yield	R1-2	8B.04, 8B.05	36 x 36 x 36	36 x 36 x 36	48 x 48 x 48	30 x 30 x 30	—
No Right Turn Across Tracks	R3-1a	8B.08	24 x 30	30 x 36	—	—	—
No Left Turn Across Tracks	R3-2a	8B.08	24 x 30	30 x 36	—	—	—
Do Not Stop on Tracks	R8-8	8B.09	24 x 30	24 x 30	36 x 48	—	36 x 48
Tracks Out of Service	R8-9	8B.10	24 x 24	24 x 24	36 x 36	—	36 x 36
Stop Here When Flashing	R8-10	8B.11	24 x 36	24 x 36	—	—	36 x 48
Stop Here When Flashing	R8-10a	8B.11	24 x 30	24 x 30	—	—	36 x 42
Stop Here on Red	R10-6	8B.12	24 x 36	24 x 36	—	—	36 x 48
Stop Here on Red	R10-6a	8B.12	24 x 30	24 x 30	—	—	36 x 42
Grade Crossing (Crossbuck)	R15-1	8B.03	48 x 9	48 x 9	—	—	—
Number of Tracks (plaque)	R15-2P	8B.03	27 x 18	27 x 18	—	—	—
Exempt (plaque)	R15-3P	8B.07	24 x 12	24 x 12	—	—	—
Report Problems	R15-4	8B.18	24 x 12	24 x 12	—	—	—
Light Rail Only Right Lane	R15-4a	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Only Left Lane	R15-4b	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Only Center Lane	R15-4c	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Do Not Pass	R15-5	8B.14	24 x 30	24 x 30	—	—	—
Do Not Pass Stopped Train	R15-5a	8B.14	24 x 30	24 x 30	—	—	—
No Motor Vehicles On Tracks Symbol	R15-6	8B.15	24 x 24	24 x 24	—	—	—
Do Not Drive On Tracks	R15-6a	8B.15	24 x 30	24 x 30	—	—	—
Light Rail Divided Highway Symbol	R15-7	8B.16	24 x 24	24 x 24	—	—	—
Light Rail Divided Highway Symbol (T-Intersection)	R15-7a	8B.16	24 x 24	24 x 24	—	—	—
Look	R15-8	8B.17	36 x 18	36 x 18	—	—	—
Grade Crossing Advance Warning	W10-1	8B.06	36 Dia.	36 Dia.	48 Dia.	—	48 Dia.
Exempt (plaque)	W10-1aP	8B.07	24 x 12	24 x 12	—	—	—
Grade Crossing and Intersection Advance Warning	W10-2,3,4	8B.06	36 x 36	36 x 36	48 x 48	—	48 x 48
Train When Flashing	W10-4A	8B.18A	36 x 18	60 x 24	—	—	—
Train When Flashing	W10-4B	8B.18A	36 x 36	48 x 48	—	—	—
Low Ground Clearance	W10-5	8B.23	36 x 36	36 x 36	48 x 48	—	48 x 48
Low Ground Clearance (plaque)	W10-5P	8B.23	30 x 24	30 x 24	—	—	—
Uneven Tracks	W10-6	8B-23A	30 x 30	36 x 36	—	—	—
Light Rail Activated Blank-Out Symbol	W10-7	8B.19	24 x 24	24 x 24	—	—	—
Trains May Exceed 80 MPH	W10-8	8B.20	36 x 36	36 x 36	48 x 48	—	48 x 48
No Train Horn	W10-9	8B.21	36 x 36	36 x 36	48 x 48	—	48 x 48
No Train Horn (plaque)	W10-9P	8B.21	30 x 24	30 x 24	—	—	—
Storage Space Symbol	W10-11	8B.24	36 x 36	36 x 36	48 x 48	—	48 x 48
Storage Space XX Feet Between Tracks & Highway	W10-11a	8B.24	30 x 36	30 x 36	—	—	—
Storage Space XX Feet Between Highway & Tracks Behind You	W10-11b	8B.24	30 x 36	30 x 36	—	—	—
Skewed Crossing	W10-12	8B.25	36 x 36	36 x 36	48 x 48	—	48 x 48
No Gates or Lights (plaque)	W10-13P	8B.22	30 x 24	30 x 24	—	—	—
Next Crossing (plaque)	W10-14P	8B.23	30 x 24	30 x 24	—	—	—
Use Next Crossing (plaque)	W10-14aP	8B.23	30 x 24	30 x 24	—	—	—
Rough Crossing (plaque)	W10-15P	8B.23	30 x 24	30 x 24	—	—	36 x 30

Notes: 1. Larger signs may be used when appropriate

2. Dimensions in inches are shown as width x height

3. Table 9B-1 shows the minimum sizes that may be used for grade crossing signs and plaques that face shared-use paths and pedestrian facilities

Table 9B-1. Bicycle Facility Sign and Plaque Minimum Sizes (Sheet 1 of 2)

Sign or Plaque	Sign Designation	Section	Shared-Use Path	Roadway
Stop	R1-1	2B.05, 9B.03	18 x 18	30 x 30
Yield	R1-2	2B.08, 9B.03	18 x 18 x 18	30 x 30 x 30
Bike Lane	R3-17	9B.04	—	24 x 18
Bike Lane (plaques)	R3-17aP, R3-17bP	9B.04	—	24 x 8
Movement Restriction	R4-1,2,3,7	2B.28,29,30,32; 9B.14	12 x 18	18 x 24
Begin Right Turn Lane Yield to Bikes	R4-4	9B.05	—	36 x 30
Bicycles May Use Full Lane	R4-11	9B.06	—	30 x 30
Bicycle Wrong Way	R5-1b	9B.07	12 x 18	12 x 18
No Motor Vehicles	R5-3	9B.08	24 x 24	24 x 24
No Bicycles	R5-6	9B.09	18 x 18	24 x 24
No Parking Bike Lane	R7-9,9a	9B.10	—	12 x 18
No Pedestrians	R9-3	9B.09	18 x 18	18 x 18
Ride With Traffic (plaque)	R9-3cP	9B.07	12 x 12	12 x 12
Bicycle Regulatory	R9-5,6	9B.11	12 x 18	12 x 18
Shared-Use Path Restriction	R9-7	9B.12	12 x 18	—
No Skaters	R9-13	9B.09	18 x 18	18 x 18
No Equestrians	R9-14	9B.09	18 x 18	18 x 18
Push Button for Green Light	R10-4	9B.11	9 x 12	9 x 12
To Request Green Wait on Symbol	R10-22	9B.13	12 x 18	12 x 18
Bike Push Button for Green Light	R10-24	9B.11	9 x 15	9 x 15
Push Button to Turn On Warning Lights	R10-25	9B.11	9 x 12	9 x 12
Bike Push Button for Green Light (arrow)	R10-26	9B.11	9 x 15	9 x 15
Grade Crossing (Crossbuck)	R15-1	8B.03, 9B.14	24 x 4.5	48 x 9
Number of Tracks (plaque)	R15-2P	8B.03, 9B.14	13.5 x 9	27 x 18
Look	R15-8	8B.17, 9B.14	18 x 9	36 x 18
Horizontal Alignment	W1-1,2,3,4,5	2C.04, 9B.15	18 x 18	24 x 24
Arrow Warning	W1-6,7	2C.12, 2C.47, 9B.15	24 x 12	36 x 18
Intersection Warning	W2-1,2,3,4,5	2C.46, 9B.16	18 x 18	24 x 24
Stop, Yield, Signal Ahead	W3-1,2,3	2C.36, 9B.19	18 x 18	30 x 30
Narrow Bridge	W5-2	2C.20, 9B.19	18 x 18	30 x 30
Path Narrows	W5-4a	9B.19	18 x 18	—
Hill	W7-5	9B.19	18 x 18	30 x 30
Bump or Dip	W8-1,2	2C.28, 9B.17	18 x 18	24 x 24
Pavement Ends	W8-3	2C.30, 9B.17	18 x 18	30 x 30
Bicycle Surface Condition	W8-10	9B.17	18 x 18	30 x 30
Slippery When Wet (plaque)	W8-10P	9B.17	12 x 9	12 x 9
Grade Crossing Advance Warning	W10-1	8B.06, 9B.19	24 Dia.	36 Dia.
No Train Horn (plaque)	W10-9P	8B.21, 9B.19	18 x 12	30 x 24
Skewed Crossing	W10-12	8B.25, 9B.19	18 x 18	36 x 36
Bicycle Warning	W11-1	9B.18	18 x 18	24 x 24
Pedestrian Crossing	W11-2	2C.50, 9B.19	18 x 18	24 x 24
Combination Bike and Ped Crossing	W11-15	9B.18	18 x 18	30 x 30
Trail Crossing (plaque)	W11-15P	9B.18	18 x 12	24 x 18
Low Clearance	W12-2	2C.27, 9B.19	18 x 18	30 x 30
Playground	W15-1	2C.51, 9B.19	18 x 18	24 x 24
Share the Road (plaque)	W16-1P	2C.60, 9B.19	—	18 x 24

Table 9B-1. Bicycle Facility Sign and Plaque Minimum Sizes (Sheet 2 of 2)

Sign or Plaque	Sign Designation	Section	Shared-Use Path	Roadway
XX Feet (plaque)	W16-2P	2C.55, 9B.18	18 x 12	24 x 18
XX Ft (plaque)	W16-2aP	2C.55, 9B.18	18 x 9	24 x 12
Diagonal Arrow (plaque)	W16-7P	9B.18	—	24 x 12
Ahead (plaque)	W16-9P	9B.18	—	24 x 12
Destination (1 line)	D1-1	2D.37, 9B.20	varies x 6	varies x 18
Bicycle Destination (1 line)	D1-1b	9B.20	varies x 6	varies x 6
Destination (2 lines)	D1-2	2D.37, 9B.20	varies x 12	varies x 30
Bicycle Destination (2 lines)	D1-2b	9B.20	varies x 12	varies x 12
Destination (3 lines)	D1-3	2D.37, 9B.20	varies x 18	varies x 42
Bicycle Destination (3 lines)	D1-3b	9B.20	varies x 18	varies x 18
Street Name	D3-1	2D.43, 9B.20	varies x 6	varies x 8
Bicycle Parking Area	D4-3	9B.23	12 x 18	12 x 18
Reference Location (1-digit)	D10-1	2H.02, 9B.24	6 x 12	10 x 18
Intermediate Reference Location (2-digit)	D10-1a	2H.02, 9B.24	6 x 18	10 x 27
Reference Location (2-digit)	D10-2	2H.02, 9B.24	6 x 18	10 x 27
Intermediate Reference Location (3-digit)	D10-2a	2H.02, 9B.24	6 x 24	10 x 36
Reference Location (3-digit)	D10-3	2H.02, 9B.24	6 x 24	10 x 36
Intermediate Reference Location (4-digit)	D10-3a	2H.02, 9B.24	6 x 30	10 x 48
Bike Route	D11-1, D11-1c	9B.20	24 x 18	24 x 18
Bicycles Permitted	D11-1a	9B.25	18 x 18	—
Bike Route (plaque)	D11-1bP	9B.25	18 x 6	—
Pedestrians Permitted	D11-2	9B.25	18 x 18	—
Skaters Permitted	D11-3	9B.25	18 x 18	—
Equestrians Permitted	D11-4	9B.25	18 x 18	—
Bicycle Route	M1-8, M1-8a	9B.21	12 x 18	18 x 24
U.S. Bicycle Route	M1-9	9B.21	12 x 18	18 x 24
Bicycle Route Auxiliary Signs	M2-1; M3-1,2,3,4; M4-1,1a,2,3,5,6,7,7a,8,14	9B.22	12 x 6	12 x 6
Bicycle Route Arrow Signs	M5-1,2; M6-1,2,3,4,5,6,7	9B.22	12 x 9	12 x 9
Type 3 Object Markers	OM3-L,C,R	2C.63, 9B.26	6 x 18	12 x 36

- Notes: 1. Larger signs may be used when appropriate
2. Dimensions are shown in inches and are shown as width x height

Guidance:

04 *Except for size, the design of signs and plaques for bicycle facilities should be identical to that provided in this Manual for signs and plaques for streets and highways.*

Support:

05 Uniformity in design of bicycle signs and plaques includes shape, color, symbols, arrows, wording, lettering, and illumination or retroreflectorization.

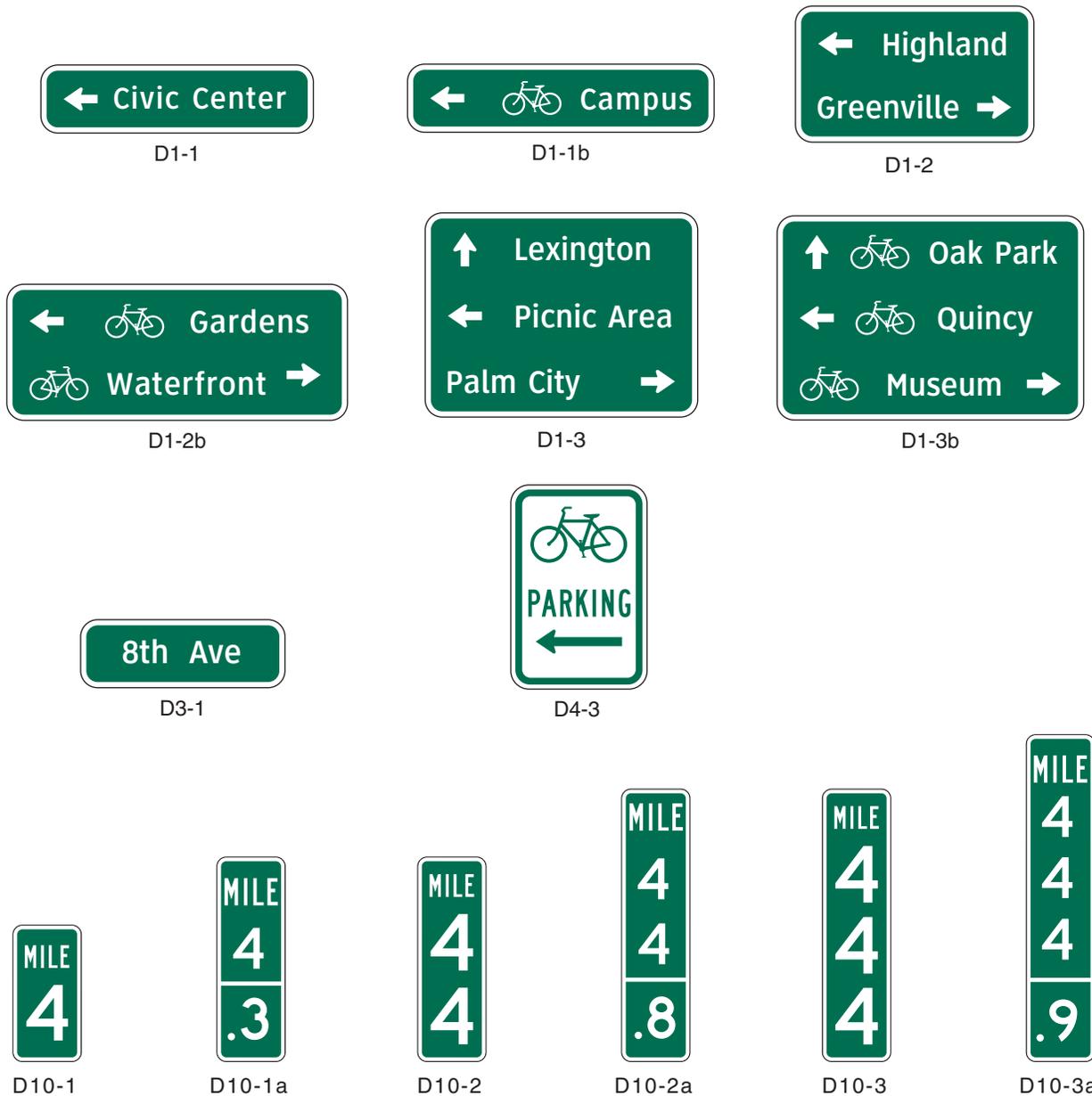
Section 9B.03 **STOP and YIELD Signs (R1-1, R1-2)**

Standard:

01 **STOP (R1-1) signs (see Figure 9B-2) shall be installed on shared-use paths at points where bicyclists are required to stop.**

02 **YIELD (R1-2) signs (see Figure 9B-2) shall be installed on shared-use paths at points where bicyclists have an adequate view of conflicting traffic as they approach the sign, and where bicyclists are required to yield the right-of-way to that conflicting traffic.**

Figure 9B-4. Guide Signs and Plaques for Bicycle Facilities (Sheet 1 of 2)



Support:

¹² Figure 9B-5 shows an example of the signing for the beginning and end of a designated bicycle route on a shared-use path. Figure 9B-6 shows an example of signing for an on-roadway bicycle route. Figure 9B-7 shows examples of signing and markings for a shared-use path crossing.

Section 9B.21 Bicycle Route Signs (M1-8, M1-8a, M1-9)

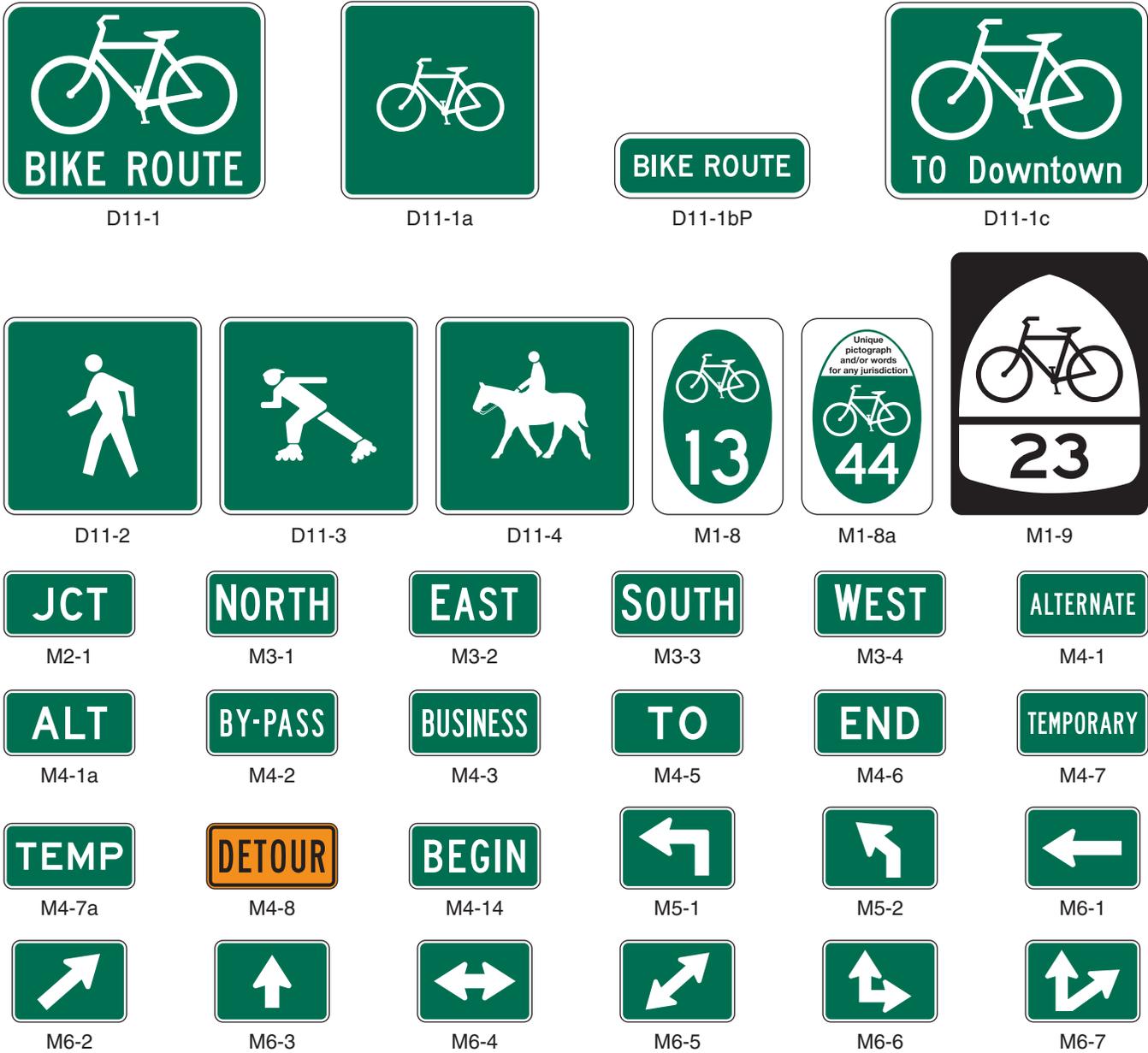
Option:

⁰¹ To establish a unique identification (route designation) for a State or local bicycle route, the Bicycle Route (M1-8, M1-8a) sign (see Figure 9B-4) may be used.

Standard:

⁰² **The Bicycle Route (M1-8) sign shall contain a route designation and shall have a green background with a retroreflectorized white legend and border. The Bicycle Route (M1-8a) sign shall contain the same**

Figure 9B-4. Guide Signs and Plaques for Bicycle Facilities (Sheet 2 of 2)



information as the M1-8 sign and in addition shall include a pictograph or words that are associated with the route or with the agency that has jurisdiction over the route.

Guidance:

03 *Bicycle routes, which might be a combination of various types of bikeways, should establish a continuous routing.*

04 *Where a designated bicycle route extends through two or more States, a coordinated submittal by the affected States for an assignment of a U.S. Bicycle Route number designation should be sent to the American Association of State Highway and Transportation Officials (see Page i for the address).*

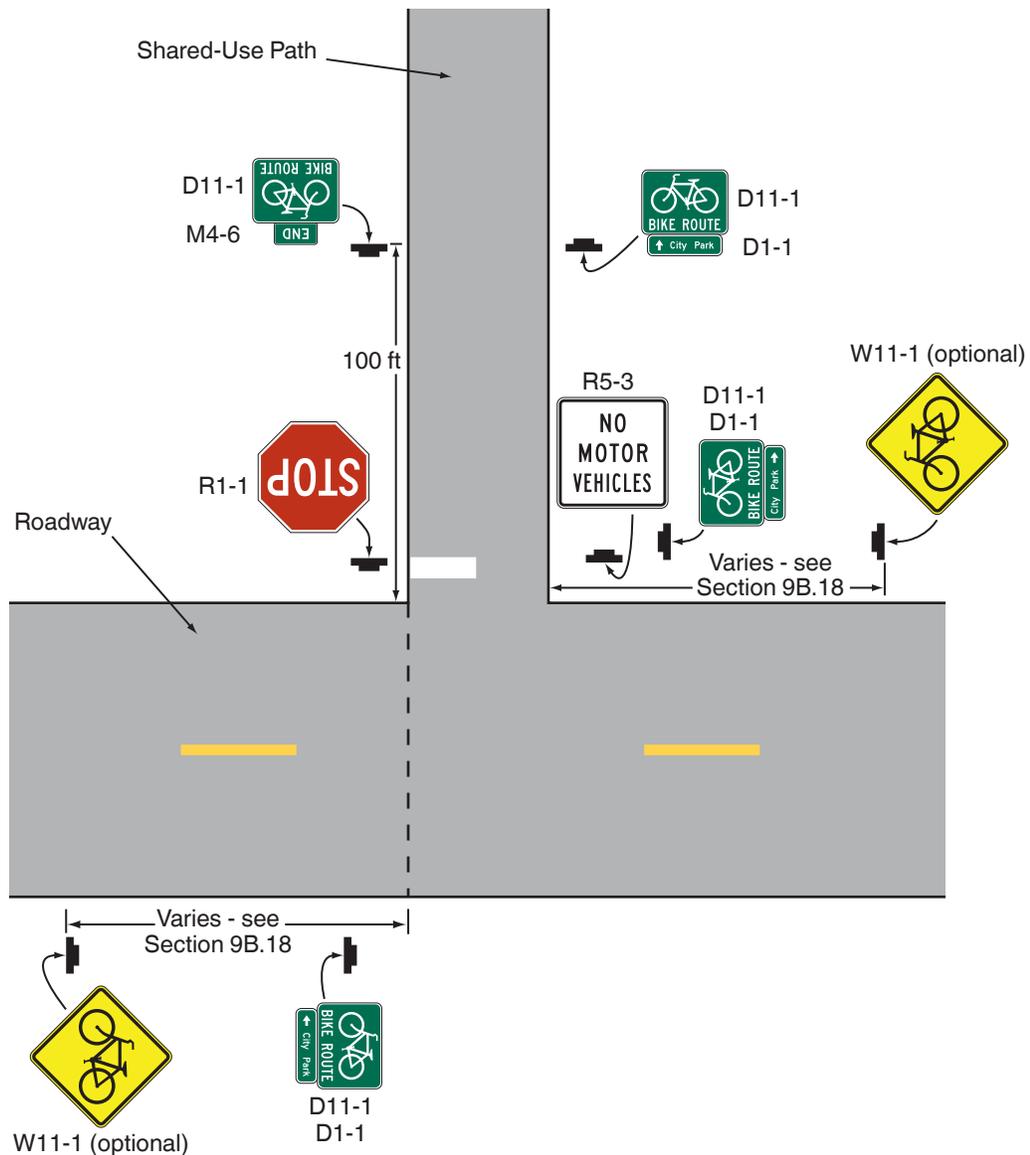
Standard:

05 **The U.S. Bicycle Route (M1-9) sign (see Figure 9B-4) shall contain the route designation as assigned by AASHTO and shall have a black legend and border with a retroreflectorized white background.**

Guidance:

06 *If used, the Bicycle Route or U.S. Bicycle Route signs should be placed at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists.*

Figure 9B-5. Example of Signing for the Beginning and End of a Designated Bicycle Route on a Shared-Use Path



Option:

- 07 Bicycle Route or U.S. Bicycle Route signs may be installed on shared roadways or on shared-use paths to provide guidance for bicyclists.
- 08 The Bicycle Route Guide (D11-1) sign (see Figure 9B-4) may be installed where no unique designation of routes is desired.

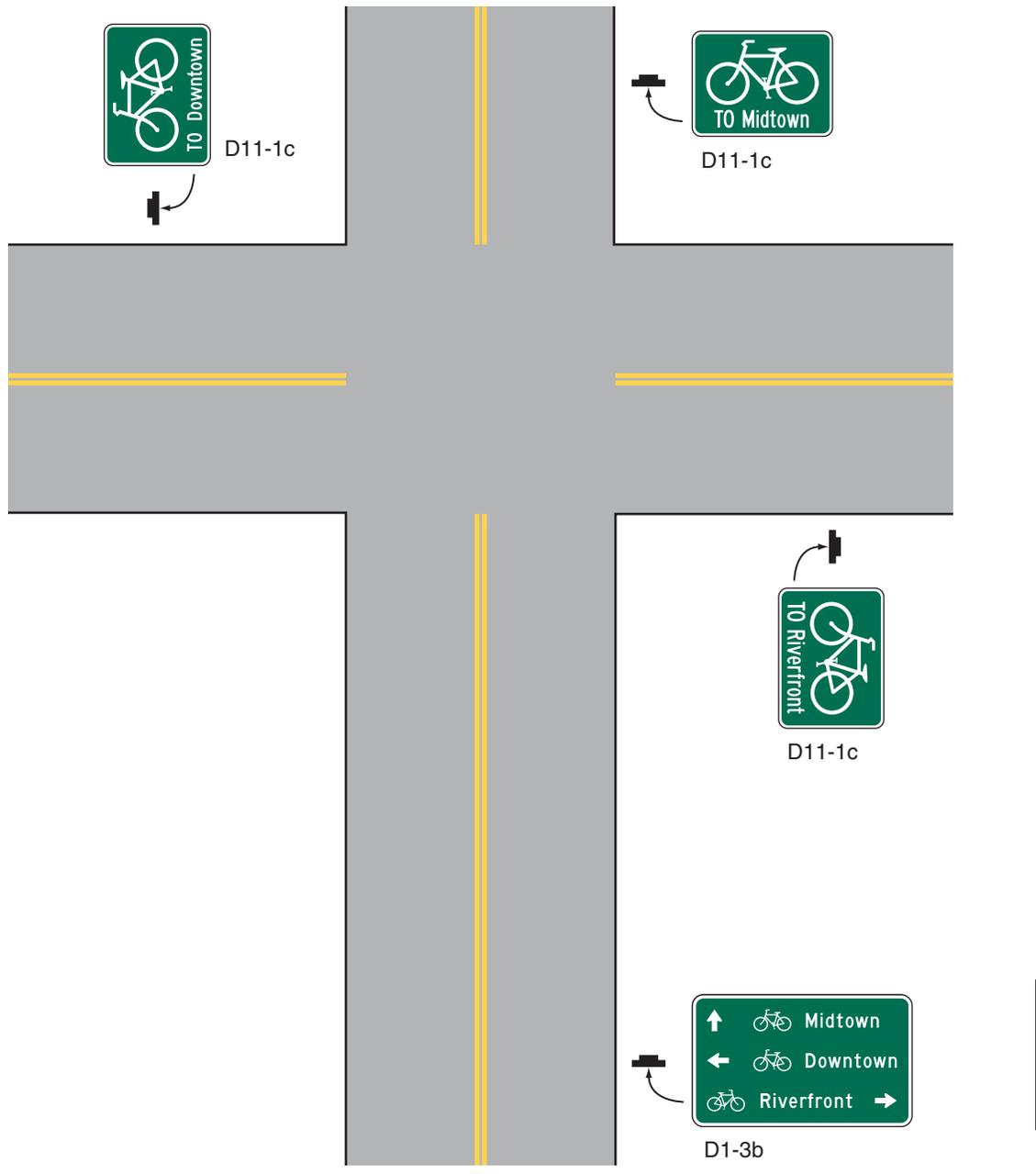
Section 9B.22 Bicycle Route Sign Auxiliary Plaques

Option:

- 01 Auxiliary plaques may be used in conjunction with Bike Route Guide signs, Bicycle Route signs, or U.S. Bicycle Route signs as needed.

Guidance:

- 02 If used, Junction (M2-1), Cardinal Direction (M3 series), and Alternative Route (M4 series) auxiliary plaques (see Figure 9B-4) should be mounted above the appropriate Bike Route Guide signs, Bicycle Route signs, or U.S. Bicycle Route signs.

Figure 9B-6. Example of Bicycle Guide Signing

03 If used, Advance Turn Arrow (M5 series) and Directional Arrow (M6 series) auxiliary plaques (see Figure 9B-4) should be mounted below the appropriate Bike Route Guide sign, Bicycle Route sign, or U.S. Bicycle Route sign.

04 Except for the M4-8 plaque, all route sign auxiliary plaques should match the color combination of the route sign that they supplement.

05 Route sign auxiliary plaques carrying word legends that are used on bicycle routes should have a minimum size of 12 x 6 inches. Route sign auxiliary plaques carrying arrow symbols that are used on bicycle routes should have a minimum size of 12 x 9 inches.

Option:

06 With route signs of larger sizes, auxiliary plaques may be suitably enlarged, but not such that they exceed the width of the route sign.

07 A route sign and any auxiliary plaques used with it may be combined on a single sign.