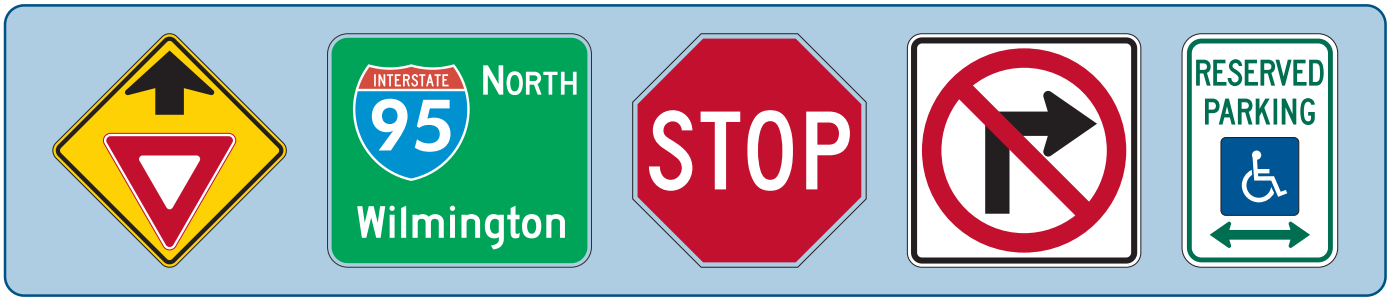
Delaware Department of Transportation

Manual on Uniform Traffic Control Devices (MUTCD)

for Streets and Highways

PART 2

SIGNS



DelDOT

Delaware Department of Transportation

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PART 2. SIGNS[1]

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DelDOT Revision

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[1] Revision 1 of the 2003 Edition of USDOT's Manual on Uniform Traffic Control Devices is the basis for Part 2 of the Delaware Department of Transportation's Manual on Uniform Traffic Control Devices. All revisions noted as "DelDOT Rev." are referenced to that document.

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CHAPTER 2A. GENERAL

Section 2A.01 Function and Purpose of Signs

Support:

This Manual contains Standards, Guidance, and Options for the signing within the right-of-way of all types of highways open to public travel. The functions of signs are to provide regulations, warnings, and guidance information for road users. Both words and symbols are used to convey the messages. Signs are not typically used to confirm rules of the road.

Detailed sign requirements are located in the following Chapters of Part 2:

Chapter 2B—Regulatory Signs

Chapter 2C—Warning Signs

Chapter 2D—Guide Signs (Conventional Roads)

Chapter 2E—Guide Signs (Freeways and Expressways)

Chapter 2F—Specific Service (Logo) Signs

Chapter 2G—Tourist-Oriented Direction Signs (NOT APPLICABLE IN DELAWARE) **DelDOT Rev.**

Chapter 2H—Recreational and Cultural Interest Area Signs

Chapter 2I—Emergency Management Signs

Standard:

Because the requirements and standards for signs depend on the particular type of highway upon which they are to be used, the following definitions shall apply:

A. Freeway—a divided highway with full control of access;
B. Expressway—a divided highway with partial control of access;
C. Conventional Road—a street or highway other than a low-volume road (as defined in Section 5A.01), a freeway, or an expressway; and
D. Special Purpose Road—a low-volume, low-speed road that serves recreational areas or resource development activities, or that provides local access.

Section 2A.02 Definitions

Support:

Definitions that are applicable to signs are given in Sections 1A.13 and 2A.01.

Section 2A.03 Standardization of Application

Support:

It is recognized that urban traffic conditions differ from those in rural environments, and in many instances signs are applied and located differently. Where pertinent and practical, this Manual sets forth separate recommendations for urban and rural conditions.

Guidance:

Signs should be used only where justified by engineering judgment or studies, as noted in Section 1A.09.

Results from traffic engineering studies of physical and traffic factors should indicate the locations where signs are deemed necessary or desirable.

Roadway geometric design and sign application should be coordinated so that signing can be effectively placed to give the road user any necessary regulatory, warning, guidance, and other information.

Standard:

Each standard sign shall be displayed only for the specific purpose as prescribed in this Manual. Determination of the particular signs to be applied to a specific condition shall be made in accordance with the criteria set forth in Part 2. Before any new highway, detour, or temporary route is opened to traffic, all necessary signs shall be in place. Signs required by road conditions or restrictions shall be removed when those conditions cease to exist or the restrictions are withdrawn.

Section 2A.04 Excessive Use of Signs

Guidance:

Regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness. If used, route signs and directional signs should be used frequently because they promote reasonably safe and efficient operations by keeping road users informed of their location.

Section 2A.05 Classification of Signs

Standard:

Signs shall be defined by their function as follows:

A. Regulatory signs give notice of traffic laws or regulations.
B. Warning signs give notice of a situation that might not be readily apparent.
C. Guide signs show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information.

Section 2A.06 Design of Signs

Support:

This Manual shows standard signs approved for use on Delaware's streets, highways, bikeways, and pedestrian crossings.

In the specifications for individual signs, the general appearance of the legend, color, and size are shown in the accompanying tables and illustrations, and are not always detailed in the text.

Enlarged depictions of standard signs commonly used in Delaware, with available sizes and notations as to which are typically stocked, are contained in the book entitled "Delaware Department of Transportation Standard Signs", hereinafter referred to as "DelDOT Standard Signs". Detailed drawings of those same signs, with dimensions of messages, arrows and symbols, are contained in the companion "Fabrication Details" book. Details and alphabets pertaining to standard signs referenced in the U. S. Department of Transportation's Manual on Uniform Traffic Control Devices, but not referenced in this Manual, are contained in the U. S. Department of Transportation publication "Standard Highway Signs". **DelDOT Rev.**

The basic requirements of a highway sign are that it be legible to those for whom it is intended and that it be understandable in time to permit a proper response. Desirable attributes include:

A. High visibility by day and night; and
B. High legibility (adequately sized letters or symbols, and a short legend for quick comprehension by a road user approaching a sign).

Standardized colors and shapes are specified so that the several classes of traffic signs can be promptly recognized. Simplicity and uniformity in design, position, and application are important.

Standard:

The term legend shall include all word messages and symbol designs that are intended to convey specific meanings.

Uniformity in design shall include shape, color, dimensions, legends, borders, and illumination or retroreflectivity.

Where a standard word message is applicable, the wording shall be as herein provided. Standardization of these designs does not preclude further improvement by minor changes in the proportion or orientation of symbols, width of borders, or layout of word messages, but all shapes and colors shall be as indicated.

In situations where word messages are required other than those herein provided, the signs shall be of the same shape and color as standard signs of the same functional type.

Except as stated in the Option below, Internet addresses shall not be shown on any sign, supplemental plaque, sign panel (including logo panels on specific service signs), or changeable message sign.

Guidance:

Unless otherwise stated in this Manual for a specific sign, and except as stated in the Option below, phone numbers of more than four characters should not be shown on any sign, supplemental plaque, sign panel (including logo panels on specific service signs), or changeable message sign.

Option:

Internet addresses or phone numbers with more than four characters may be shown on signs, supplemental plaques, sign panels, and changeable message signs that are intended for viewing only by pedestrians, bicyclists, occupants of parked vehicles, or drivers of vehicles on low-speed roadways where engineering judgment indicates that drivers can reasonably safely stop out of the traffic flow to read the message.

Special word message signs may be developed for situations where roadway conditions make it necessary to provide road users with additional regulatory, warning, or guidance information. Prior to their placement on DelDOT-maintained roadways, these signs must be approved for use by the Chief Traffic Engineer or a designee. **DelDOT Rev.**

Section 2A.07 <u>Changeable Message Signs</u>

Standard:

To the extent practical, changeable message signs, which are traffic control devices designed to display variable messages, shall conform to the principles established in this Manual, and with the design and applications prescribed in Sections 2E.21, 6F.02, and 6F.55.

Guidance:

Except for safety or transportation-related messages, changeable message signs should not be used to display information other than regulatory, warning, and guidance information related to traffic control.

Support:

Changeable message signs, with more sophisticated technologies, are gaining widespread use to inform road users of variable situations, particularly along congested traffic corridors.

Information regarding the design and application of portable changeable message signs in temporary traffic control zones is contained in Section 6F.55. Section 1A.14 contains information regarding the use of abbreviations on traffic control devices, including changeable message signs.

Option:

Changeable message signs (including portable changeable message signs) that display a regulatory or warning message may use a black background with a white, yellow, orange, red, or fluorescent yellow-green legend as appropriate, except where specifically restricted in this Manual for a particular sign.

Changeable message signs, both permanent and portable, may be used to display safety or transportation-related messages. These messages must be approved for use by the Chief Traffic Engineer or a designee. **DelDOT Rev.**

Support:

Examples of safety messages include SEAT BELTS BUCKLED? and DON’T DRINK AND DRIVE. Examples of transportation-related messages include STADIUM EVENT SUNDAY, EXPECT DELAYS NOON TO 4 PM and OZONE ALERT CODE RED—USE TRANSIT.

Guidance:

When a changeable message sign is used to display a safety or transportation-related message, the requirements of Section 6F.55 should be followed. The message should be simple, brief, legible, and clear. A changeable message sign should not be used to display a safety or transportation-related message if doing so would adversely affect the respect for the sign. “CONGESTION AHEAD” or other overly simplistic or vague messages should not be displayed alone. These messages should be supplemented with a message on the location or distance to the congestion or incident, how much delay is expected, alternative route, or other similar messages.

Standard:

When a changeable message sign is used to display a safety or transportation-related message, the display format shall not be of a type that could be considered similar to advertising displays. The display format shall not include animation, rapid flashing, or other dynamic elements that are characteristic of sports scoreboards or advertising displays.

Section 2A.08 Retroreflectivity and Illumination

Support:

There are many materials currently available for retroreflection and various methods currently available for the illumination of signs. New materials and methods continue to emerge. New materials and methods can be used as long as the signs meet the standard requirements for color, both by day and by night.

Standard:

Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion in this Manual of a particular sign or group of signs.

The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting.

Guidance:

All overhead sign installations should be illuminated unless an engineering study shows that retroreflection will perform effectively without illumination.

Option:

Sign elements may be illuminated by the means shown in Table 2A-1.

Retroreflection of sign elements may be accomplished by the means shown in Table 2A-2.

Table 2A-1. Illumination of Sign Elements

Means of Illumination	Sign Element To Be Illuminated
Light behind the sign face	• Symbol or word message • Background • Symbol, word message, and background (through a translucent material)
Attached or independently mounted light source designed to direct essentially uniform illumination onto the sign face	• Entire sign face
Light emitting diodes (LEDs)	• Symbol or word message • Portions of the sign border
Other devices, or treatments that highlight the sign shape, color, or message: Luminous tubing Fiber Optics Incandescent light bulbs Luminescent panels	• Symbol or word message • Entire sign face

Table 2A-2. Retroreflection of Sign Elements

Means of Retroreflection	Sign Element
Reflector "buttons" or similar units	Symbol Word message Border
A material that has a smooth, sealed outer surface over a microstructure that reflects light	Symbol Word message Border Background

Light Emitting Diode (LED) units may be used individually within the face of a sign and in the border of a sign, except for Changeable Message Signs, to improve the conspicuity, increase the legibility of sign legends and borders, or provide a changeable message. Individual LED pixels may be used in the border of a sign.

Standard:

If used, the LEDs shall be the same color as the sign legend, border, or background. If flashed, all LED units shall flash simultaneously at a rate of more than 50 and less than 60 times per minute. The uniformity of the sign design shall be maintained without any decrease in visibility, legibility, or driver comprehension during either daytime or nighttime conditions.

A module of multiple LED units used as a closely-spaced, single light source shall only be used within the sign face for legends or symbols.

Support:

Information regarding the use of retroreflective material on the sign support is contained in Section 2A.21.

Section 2A.09 <u>Minimum Retroreflectivity Levels</u>

Support:

(This section is reserved for future text based on FHWA rulemaking.)

Section 2A.10 <u>Shapes</u>

Standard:

Particular shapes, as shown in Table 2A-3, shall be used exclusively for specific signs or series of signs, unless specifically stated otherwise in the text discussion in this Manual for a particular sign or class of signs.

Section 2A.11 <u>Sign Colors</u>

Standard:

The colors to be used on standard signs and their specific use on these signs shall be as indicated in the applicable Sections of this Manual. The color coordinates and values shall be as described in 23 CFR, Part 655, Subpart F, Appendix.

Support:

As a quick reference, common uses of sign colors are shown in Table 2A-4. Color schemes on specific signs are shown in the illustrations located in each appropriate Section.

Whenever white is specified herein as a color, it is understood to include silver-colored retroreflective coatings or elements that reflect white light.

The colors coral, purple, and light blue are being reserved for uses that will be determined in the future by the Federal Highway Administration.

Information regarding color coding of destinations on guide signs is contained in Section 2D.03.

Guidance:

Fluorescent yellow sheeting should be used for overhead mounted warning signs.

Option:

Fluorescent yellow sheeting may be used on ground mounted warning signs to draw special attention to the sign message.

DelDOT Rev.

Section 2A.12 Dimensions

Support:

Sign sizes for use on the different classes of highways are shown in Sections 2B.03, 2C.04, 2D.04, 5A.03, 6F.02, 7B.01, 8B.02, and 9B.02, in "DelDOT Standard Signs" and in "Standard Highway Signs."

"DelDOT Standard Signs" prescribes design details for up to five different sizes depending on the type of traffic facility, including bikeways. Smaller sizes are designed to be used on bikeways and some other off-road applications. Larger sizes are designed for use on freeways and expressways, and can also be used to enhance road user safety and convenience on other facilities, especially on multi-lane divided highways and on undivided highways having five or more lanes of traffic and/or high speeds. The intermediate sizes are designed to be used on other highway types.

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Standard:

The sign dimensions prescribed in this Manual, in "DelDOT Standard Signs" and in "Standard Highway Signs" shall be used unless engineering judgment determines that other sizes are appropriate. Where engineering judgment determines that sizes smaller than the prescribed dimensions are appropriate for use, the sign dimensions shall not be less than the minimum dimensions specified in this Manual. Where engineering judgment determines that sizes larger than the prescribed dimensions are appropriate for use, standard shapes and colors shall be used and standard proportions shall be retained as much as practical.

Guidance:

Increases above the prescribed sizes should be used where greater legibility or emphasis is needed. Wherever practical, the overall sign dimensions should be increased in 150 mm (6 in) increments.

Table 2A-3. Use of Sign Shapes

DelDOT Rev.

Shape	Signs
Octagon	* Stop
Equilateral Triangle (1 point down)	* Yield
Circle	* Highway-Rail Grade Crossing (Advance Warning)
Pentagon (pointed up)	* School Advance Warning Sign
Crossbuck (two rectangles in an "X" configuration)	* Highway-Rail Grade Crossing
Diamond	Warning Series
Rectangle (including square)	Regulatory Series ** Guide Series Warning Series
Trapezoid	Recreational and Cultural Interest Area Series National Forest Route Sign

* This sign shall be exclusively the shape shown.
** Guide series includes general service, specific service, recreation, and emergency management signs.

Section 2A.13 Symbols

Support:

Sometimes a change from word messages to symbols requires significant time for public education and transition. Therefore, this Manual includes the practice of using educational plaques to accompany some new symbol signs.

Standard:

Symbol designs shall in all cases be unmistakably similar to those shown in this Manual and in "Standard Highway Signs". New symbol designs shall be adopted by the Federal Highway Administration based on research evaluations to determine road user comprehension, sign conspicuity, and sign legibility. **DelDOT Rev.**

Guidance:

New warning or regulatory symbol signs not readily recognizable by the public should be accompanied by an educational plaque.

Option:

Research studies may be conducted to determine road user comprehension, sign conspicuity, and sign legibility. **DelDOT Rev.**

Educational plaques may be left in place as long as they are in serviceable condition.

Although most standard symbols are oriented facing left, mirror images of these symbols may be used where the reverse orientation might better convey to road users a direction of movement.

Table 2A-4. Common Uses of Sign Colors **DelDOT Rev.**

Type of Sign	Legend					Background									
	Black	Green	Red	White	Yellow	Black	Blue	Brown	Green	Orange	Red	White	Yellow	Fluorescent Yellow-Green	Fluorescent Pink
Regulatory	X		X	X		X					X	X			
Prohibitive			X	X							X	X			
Permissive		X										X			
Warning	X												X		
Pedestrian	X												X	X	
Bicycle	X												X		
Guide				X					X						
Interstate Route				X			X				X				
State Route	X											X			
US Route	X											X			
Street Name				X					X						
WELCOME TO (Development)				X			X								
Destination				X					X						
Reference Location				X					X						
Information				X			X		X						
Evacuation Route				X			X								
Road User Service				X			X								
Recreational				X				X	X						
Temporary Traffic Control	X									X					
Incident Management	X									X					X
Changeable Message Signs*				X	X	X									
School	X												X	X	

*Reverse colors or fluorescent yellow-green pixels may also be used in changeable message signs.

Section 2A.14 Word Messages

Standard:

Except as noted in Section 2A.06, all word messages shall use standard wording and letters as shown in this Manual and in the "Standard Highway Signs" book (see Section 1A.11).

Guidance:

Word messages should be as brief as possible and the lettering should be large enough to provide the necessary legibility distance. A minimum specific ratio, such as 25 mm (1 in) of letter height per 12 m (40 ft) of legibility distance, should be used.

Support:

Some research indicates that a ratio of 25 mm (1 in) of letter height per 10 m (33 ft) of legibility distance could be beneficial.

Guidance:

Abbreviations (see Section 1A.14) should be kept to a minimum, and should include only those that are commonly recognized and understood, such as AVE (for Avenue), BLVD (for Boulevard), N (for North), or JCT (for Junction).

Standard:

All sign lettering shall be in capital letters as provided in "Standard Highway Signs", except as indicated in the Option below.

Option:

Word messages on street name signs and destinations on guide signs may be composed of a combination of lower-case letters with initial upper-case letters.

Section 2A.15 Sign Borders

Standard:

Unless specifically stated otherwise, each sign illustrated herein shall have a border of the same color as the legend, at or just inside the edge.

The corners of all sign borders shall be rounded, except for STOP signs.

Guidance:

A dark border on a light background should be set in from the edge, while a light border on a dark background should extend to the edge of the panel. A border for 750 mm (30 in) signs with a light background should be from 13 to 19 mm (0.5 to 0.75 in) in width, 13 mm (0.5 in) from the edge. For similar signs with a light border, a width of 25 mm (1 in) should be used. For other sizes, the border width should be of similar proportions, but should not exceed the stroke-width of the major lettering of the sign. On signs exceeding 1800 x 3000 mm (72 x 120 in) in size, the border should be 50 mm (2 in) wide, or on larger signs, 75 mm (3 in) wide. Except for STOP signs and as otherwise provided in Section 2E.15, the corners of the sign should be rounded to fit the border.

Section 2A.16 Standardization of Location

Support:

Standardization of position cannot always be attained in practice. Examples of heights and lateral locations of signs for typical installations are illustrated in Figure 2A-1, and examples of locations for some typical signs at intersections are illustrated in Figure 2A-2.

Standard:

Signs requiring different decisions by the road user shall be spaced sufficiently far apart for the required decisions to be made reasonably safely. One of the factors considered when determining the appropriate spacing shall be the posted or 85th-percentile speed.

Guidance:

Signs should be located on the right side of the roadway where they are easily recognized and understood by road users. Signs in other locations should be considered only as supplementary to signs in the normal locations, except as otherwise indicated.

Signs should be individually installed on separate posts or mountings except where:

A. One sign supplements another, or
B. Route or directional signs are grouped to clarify information to motorists, or
C. Regulatory signs that do not conflict with each other are grouped, such as turn prohibition signs posted with one-way signs, street name signs posted with a stop or yield sign, or a parking regulation sign posted with a speed limit sign.

Signs should be located so that they:

A. Are outside the clear zone unless placed on a breakaway or yielding support (see Section 2A.19);
B. Optimize nighttime visibility;
C. Minimize the effects of mud splatter and debris;
D. Do not obscure each other; and
E. Are not hidden from view.

Support:

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 the "AASHTO Roadside Design Guide" (see Page i for AASHTO's address).

Guidance:

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:

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:

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. Information of a less critical nature should be moved to less critical locations or omitted.

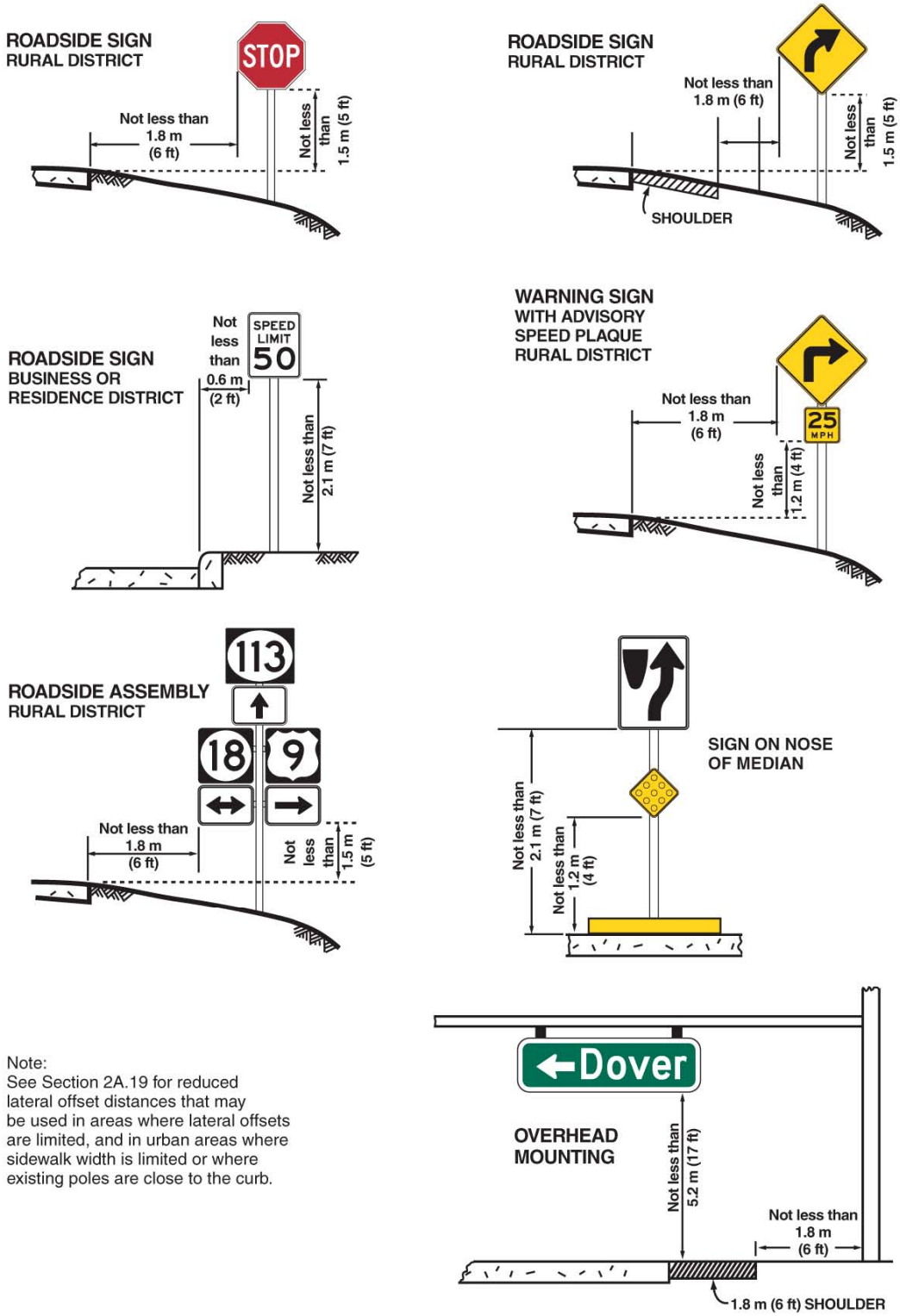
Option:

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

Guidance:

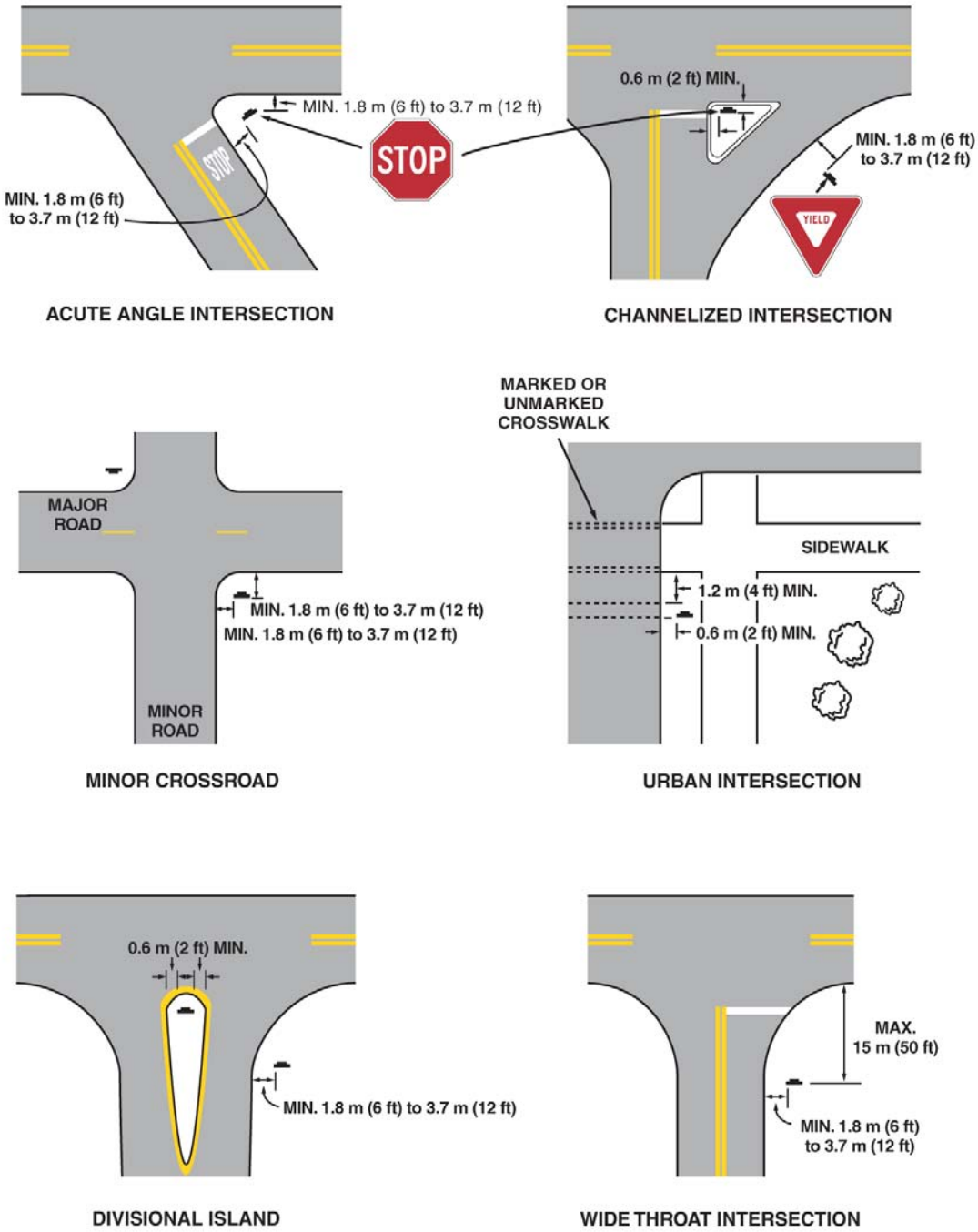
In urban areas where crosswalks exist, signs should not be placed within 1.2 m (4 ft) in advance of the crosswalk.

Figure 2A-1. Examples of Heights and Lateral Locations of Signs for Typical Installations



Note:
See Section 2A.19 for reduced lateral offset distances that may be used in areas where lateral offsets are limited, and in urban areas where sidewalk width is limited or where existing poles are close to the curb.

Figure 2A-2. Examples of Locations for Some Typical Signs at Intersections



Note: Lateral offset is a minimum of 1.8 m (6 ft) measured from the edge of the shoulder, or 3.7 m (12 ft) measured from the edge of the traveled way. See Section 2A.19 for lower minimums that may be used in urban areas, or where lateral offset space is limited.

Section 2A.17 Overhead Sign Installations

Guidance:

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:

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:

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 ground-mounted signs;
L. Junction of two freeways; and
M. Left exit ramps.

Over-crossing structures may serve for the support of overhead signs, and under some circumstances, may be the only practical solution that will provide adequate viewing distance. Use of such structures as sign supports may eliminate the need for the foundations and sign supports along the roadside.

Section 2A.18 Mounting Height

Support:

The provisions of this Section apply unless specifically stated otherwise for a particular sign elsewhere in this Manual.

Standard:

Signs installed at the side of the road in rural districts shall be at least 1.5 m (5 ft), measured from the bottom of the sign to the near edge of the pavement.

Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 2.1 m (7 ft).

Directional signs on freeways and expressways shall be installed with a minimum height of 2.1 m (7 ft). If a secondary sign is mounted below another sign, the major sign shall be installed at least 2.4 m (8 ft) and the secondary sign at least 1.5 m (5 ft) above the level of the pavement edge. All route signs, warning signs, and regulatory signs on freeways and expressways shall be at least 2.1 m (7 ft) above the level of the pavement edge.

Option:

The height to the bottom of a secondary sign mounted below another sign may be 0.3 m (1 ft) less than the height specified above.

Where signs are placed 9 m (30 ft) or more from the edge of the traveled way, the height to the bottom of such signs may be 1.5 m (5 ft) above the level of the pavement edge.

A route sign assembly consisting of a route sign and auxiliary signs (see Section 2D.27) may be treated as a single sign for the purposes of this Section.

The mounting height may be adjusted when supports are located near the edge of the right-of-way on a steep backslope.

Support:

Without this flexibility regarding steep backslopes, some agencies might decide to relocate the sign closer to the road, which might be less desirable.

Standard:

Overhead mounted signs shall provide a vertical clearance of not less than 5.2 m (17 ft) to the sign, light fixture, or sign bridge, over the entire width of the pavement and shoulders except where a lesser vertical clearance is used for the design of other structures.

Option:

If the vertical clearance of other structures is less than 4.9 m (16 ft), the vertical clearance to overhead sign structures or supports may be as low as 0.3 m (1 ft) higher than the vertical clearance of the other structures.

In special cases it may be necessary to reduce the clearance to overhead signs because of substandard dimensions in tunnels and other major structures.

Support:

Figure 2A-1 illustrates some examples of the mounting height requirements contained in this Section.

Section 2A.19 Lateral Offset

Standard:

For overhead sign supports, the minimum lateral offset from the edge of the shoulder (or if no shoulder exists, from the edge of the pavement) to the near edge of overhead sign supports (cantilever or sign bridges) shall be 1.8 m (6 ft). Overhead sign supports shall have a barrier or crash cushion to shield them if they are within the clear zone.

Ground-mounted sign supports shall be breakaway, yielding, or shielded with a longitudinal barrier or crash cushion if within the clear zone.

Guidance:

For ground-mounted signs, the minimum lateral offset should be 3.7 m (12 ft) from the edge of the traveled way. If a shoulder wider than 1.8 m (6 ft) exists, the minimum lateral offset for ground-mounted signs should be 1.8 m (6 ft) from the edge of the shoulder.

Support:

The minimum lateral offset is intended to keep trucks and cars that use the shoulders from striking the signs or supports.

Guidance:

All supports should be located as far as practical from the edge of the shoulder. Advantage should be taken to place signs behind existing roadside barriers, on over-crossing structures, or other locations that minimize the exposure of the traffic to sign supports.

Option:

Where permitted, signs may be placed on existing supports used for other purposes, such as highway traffic signal supports, highway lighting supports, and utility poles.

Standard:

If signs are placed on existing supports, they shall meet other placement criteria contained in this Manual.

Option:

Lesser lateral offsets may be used on connecting roadways or ramps at interchanges, but not less than 1.8 m (6 ft) from the edge of the traveled way.

In areas where lateral offsets are limited, a minimum lateral offset of 0.6 m (2 ft) may be used.

A minimum offset of 0.3 m (1 ft) from the face of the curb may be used in urban areas where sidewalk width is limited or where existing poles are close to the curb.

Support:

Figures 2A-1 and 2A-2 illustrate some examples of the lateral offset requirements contained in this Section.

Section 2A.20 Orientation

Guidance:

Unless otherwise stated in this Manual, signs should be vertically mounted at right angles to the direction of, and facing, the traffic that they are intended to serve.

Where mirror reflection from the sign face is encountered to such a degree as to reduce legibility, the sign should be turned slightly away from the road. Signs that are placed 9 m (30 ft) or more from the pavement edge should be turned toward the road. On curved alignments, the angle of placement should be determined by the direction of approaching traffic rather than by the roadway edge at the point where the sign is located.

Option:

On grades, sign faces may be tilted forward or back from the vertical position to improve the viewing angle.

Section 2A.21 Posts and Mountings

Standard:

Sign posts, foundations, and mountings shall be so constructed as to hold signs in a proper and permanent position, and to resist swaying in the wind or displacement by vandalism.

Support:

The latest edition of AASHTO's "Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" contains additional information regarding posts and mounting (see Page i for AASHTO's address).

Option:

Where engineering judgment indicates a need to draw attention to the sign during nighttime conditions, a strip of retroreflective material may be used on regulatory and warning sign supports.

Standard:

If a strip of retroreflective material is used on the sign support, it shall be at least 50 mm (2 in) in width, it shall be placed for the full length of the support from the sign to within 0.6 m (2 ft) above the edge of the roadway, and its color shall match the background color of the sign, except that the color of the strip for the YIELD and DO NOT ENTER signs shall be red.

Section 2A.22 Maintenance

Guidance:

All traffic signs should be kept properly positioned, clean, and legible, and should have adequate retroreflectivity. Damaged or deteriorated signs should be replaced.

To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs should be established. Employees of DelDOT, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, or obscured signs at the first opportunity.

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Steps should be taken to see that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign. Figure 2A-3 shows an example of the area to be kept clear of foliage.

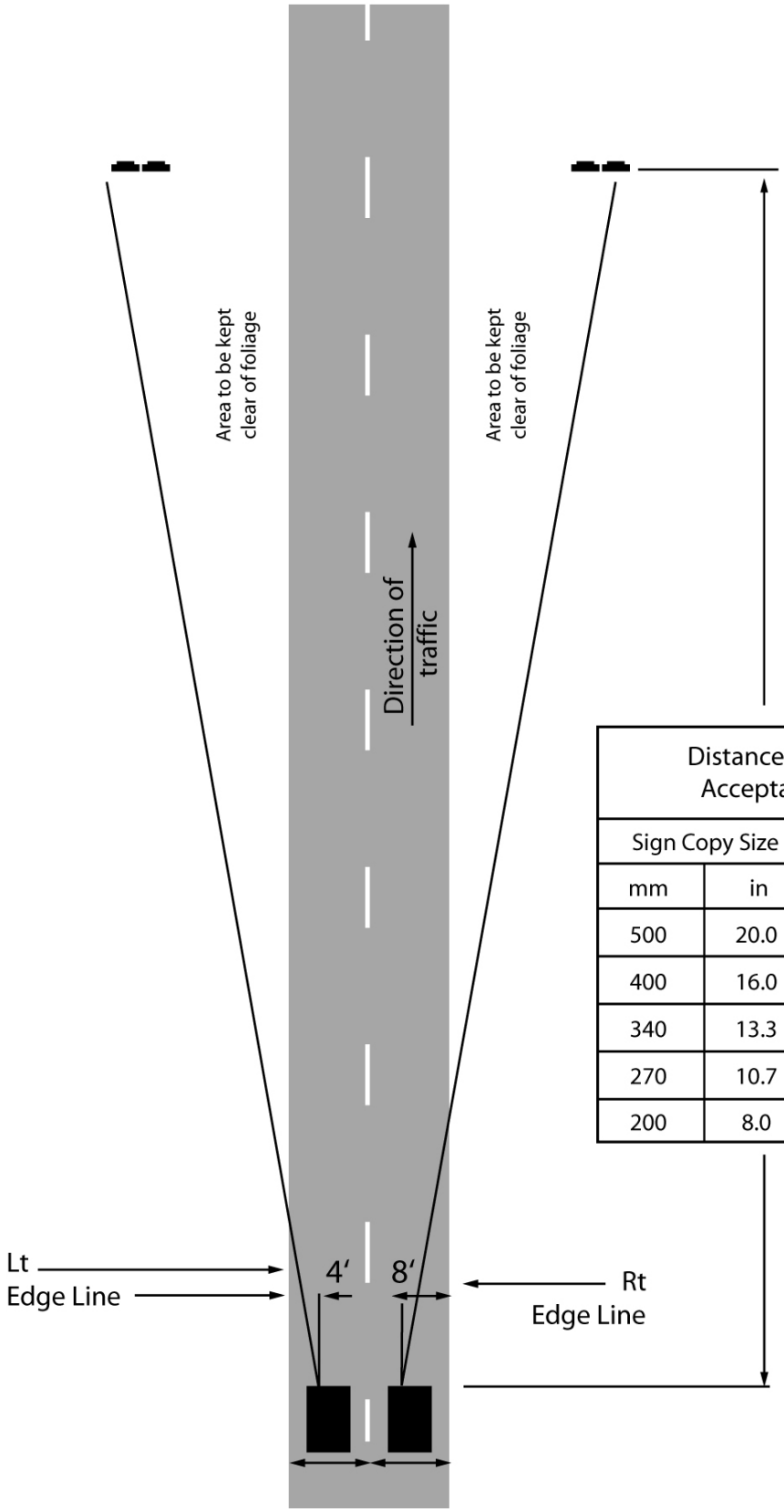
A regular schedule of replacement of lighting elements for illuminated signs should be maintained.

Section 2A.23 Median Opening Treatments for Divided Highways with Wide Medians

Guidance:

Where divided highways are separated by median widths at the median opening itself of 9 m (30 ft) or more, median openings should be signed as two separate intersections.

Figure 2A-3. Sign Clearance - Foliage
(DelDOT MUTCD Only)



Distance from Sign for Acceptable Viewing			
Sign Copy Size		Distance	
mm	in	meter	feet
500	20.0	305	1000
400	16.0	245	800
340	13.3	205	675
270	10.7	170	550
200	8.0	120	400

CHAPTER 2B. REGULATORY SIGNS

Section 2B.01 Application of Regulatory Signs

Standard:

Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements.

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.

Regulatory signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion of a particular sign or group of signs (see Section 2A.08).

The requirements for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.

Section 2B.02 Design of Regulatory Signs

Support:

Most regulatory signs are rectangular, with the longer dimension vertical. The shapes and colors of regulatory signs are listed in Tables 2A-3 and 2A-4, respectively. Exceptions are specifically noted in the following Sections.

The use of educational plaques to supplement symbol signs is described in Section 2A.13.

Guidance:

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:

The sizes for regulatory signs shall be as shown in Table 2B-1. The Minimum and Oversized sized signs shall only be used if approved by DelDOT's Chief Traffic Engineer or a designee. This table contains all regulatory signs commonly used in Delaware, not only those referenced in Chapter 2B. **DelDOT Rev.**

Guidance:

The Freeway and Expressway sizes should be used for higher-speed applications to provide larger signs for increased visibility and recognition.

Option:

The Minimum size may only be used on low-speed roadways where the reduced legend size would be adequate for the regulation or where physical conditions preclude the use of the other sizes.

The Oversized size may only be used for those special applications where speed, volume, or other factors result in conditions where increased emphasis, improved recognition, or increased legibility would be desirable. **DelDOT Rev.**

Signs larger than those shown in Table 2B-1 may be used (see Section 2A.12) if approved by DelDOT's Chief Traffic Engineer or a designee.

Section 2B.04 STOP Sign (R1-1)

Standard:

When a sign is used to indicate that traffic is always required to stop, a STOP (R1-1) sign (see Figure 2B-1) shall be used.

The STOP sign shall be an octagon with a white legend and border on a red background. Secondary legends shall not be used on STOP sign faces. If appropriate, a supplemental plaque (R1-3, R1-3-2-DE, or R1-3-3-DE) shall be used to display a secondary legend. Such plaques (see Figure 2B-1) shall have a white legend and border on a red background. If the number of approach legs controlled by STOP signs at an intersection is three or more, the numeral on the **DelDOT Rev.**

supplemental plaque, if used, shall correspond to the actual number of legs controlled by STOP signs.

At intersections where all approaches are controlled by STOP signs (see Section 2B.07), a supplemental plaque (R1-3, R1-3-2-DE, or R1-3-3-DE) shall be mounted below each STOP sign.

Option:

The ALL WAY (R1-4) supplemental plaque may be used instead of the 4-WAY (R1-3), 3-WAY (R1-3-3-DE), or 2-WAY (R1-3-2-DE) supplemental plaque when all intersection approaches are controlled by STOP signs.

Support:

The design and application of Stop Beacons are described in Section 4K.05.

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Table 2B-1. Regulatory Sign Sizes *(Sheet 1 of 4)*

Sign	DelDOT MUTCD Code	Section	Conventional Road	Expressway	Freeway	Minimum	Oversized
Stop	R1-1	2B.04	750 x 750 (30 x 30)	900 x 900 (36 x 36)	-	-	1200 x 1200 (48 x 48)
Yield	R1-2	2B.08	900 x 900 x 900 (36 x 36 x 36)	1200 x 1200 x 1200 (48 x 48 x 48)	1500 x 1500 x 1500 (60 x 60 x 60)	-	-
To Oncoming Traffic	R1-2a	2B.08	600 x 450 (24 x 18)	600 x 450 (24 x 18)	-	-	-
To U-Turning Traffic	R1-2a-DE	2B.08	600 x 450 (24 x 18)	600 x 450 (24 x 18)	-	-	-
To Turning Traffic	R1-2a-DE1	2B.08	600 x 450 (24 x 18)	600 x 450 (24 x 18)	-	-	-
No Merge Area	R1-2a-DE2	2B.08	450 x 300 (18 x 12)	600 x 450 (24 x 18)	600 x 450 (24 x 18)	-	-
X-Way	R1-3, 3-2-DE, 3-3-DE	2B.04	300 x 150 (12 x 6)	-	-	-	-
ALL WAY	R1-4	2B.04	450 x 150 (18 x 6)	-	-	-	-
Yield Here to Pedestrians	R1-5L, 5R	2B.11	450 x 450 (18 x 18)	-	-	-	-
In-Street Ped Crossing	R1-6,6a	2B.12	300 x 900 (12 x 36)	-	-	-	-
Speed Limit	R2-1	2B.13	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Truck Speed Limit	R2-2	2B.14	600 x 600 (24 x 24)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	-	-
End XX MPH	R2-1-DE	2B.13	600 x 750 (24 x 30)	-	-	-	-
Reduced Speed Ahead	R2-5-DE	2B.13	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	-	-	-
Fines Higher	R2-6	2B.17	600 x 600 (24 x 24)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	-	-
Turn Prohibition	R3-1, 2, 3, 4, 18	2B.19	600 x 600 (24 x 24)	900 x 900 (36 x 36)	-	-	1200 x 1200 (48 x 48)
No Turns Official Use Only	R3-3-DE	2B.19	600 x 600 (24 x 24)	600 x 600 (24 x 24)	600 x 600 (24 x 24)	-	-
Thru Movement Prohibition (Symbol)	R3-4-DE	2B.19	600 x 600 (24 x 24)	900 x 900 (36 x 36	-	-	-
Mandatory Movement Lane Control (Symbol)	R3-5L, 5R, 5a	2B.21	750 x 900 (30 x 36)	-	-	-	-
Mandatory Movement Lane Control (Plaques)	R3-5b, 5e, 5f, 5g	2B.21	750 x 300 (30 x 12)	-	-	-	-
Right Turn Only	R3-5R-DE	2B.21	600 x 750 (24 x 30)	-	-	-	-
Optional Movement Lane Control	R3-6L, 6R	2B.22	750 x 900 (30 x 36)	-	-	-	-
Mandatory Movement Lane Control	R3-7L, 7R	2B.21	750 x 750 (30 x 30)	-	-	-	-
Advance Intersection Lane Control (2 Lanes)	R3-8	2B.23	750 x 750 (30 x 30)	-	-	-	-
Advance Intersection Lane Control (3 Lanes)	R3-8a, 8b	2B.23	1200 x 750 (48 x 30)	-	-	-	-
Turn Lane	R3-8-DE	2B.23	450 x 450 (18 x 18)	450 x 450 (18 x 18)	-	-	-
Two-Way Left Turn Only (overhead mounted)	R3-9a	2B.24	750 x 900 (30 x 36)	-	-	-	-

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

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Sign	DelDOT MUTCD Code	Section	Conventional Road	Expressway	Freeway	Minimum	Oversized
Two-Way Left Turn Only (ground mounted)	R3-9b	2B.24	600 x 900 (24 x 36)	-	-	-	900 x 1200 (36 x 48)
Bus Lane Ahead (ground mounted)	R3-10a	2B.26	750 x 1050 (30 x 42)	900 x 1500 (36 x 60)	-	-	-
Buses Only (ground mounted)	R3-11b	2B.26	750 x 1050 (30 x 42)	-	-	-	-
Right Lane Operation (ground mounted)	R3-11b-DE	2B.26	1050 x 1500 (42 x 60)	1050 x 1500 (42 x 60)	-	-	-
Bus Only (overhead mounted)	R3-14b-DE	2B.26	1800 x 1500 (72 x 60)	1800 x 1500 (72 x 60)	-	-	-
Bike Lane	R3-17	9B.04	750 x 600 (30 x 24)	-	-	-	-
Ahead (for use with R3-17)	R3-17a	9B.04	750 x 300 (30 x 12)	-	-	-	-
Ends (for use with R3-17)	R3-17b	9B.06	750 x 300 (30 x 12)	-	-	-	-
Do Not Pass	R4-1	2B.29	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
No Passing on Shoulder	R4-1-DE	2B.29	600 x 750 (24 x 30)	-	-	-	-
Slower Traffic Keep Right	R4-3	2B.31	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Trucks Keep Right Except Left Turns	R4-3-DE	2B.31	750 x 900 (30 x 36)	750 x 900 (30 x 36)	-	-	-
No Trucks Left Lane Except Left Turns	R4-3-DE1	2B.31	900 x 900 (36 x 36)	900 x 900 (36 x 36)	-	-	-
Begin Right Turn Lane Yield to Bikes	R4-4	9B.05	900 x 750 (36 x 30)	-	-	-	-
RIGHT TURN YIELD TO BIKES	R4-4-DE	9B.05	900 x 750 (36 x 30)	-	-	-	-
Truck Lane	R4-5, 6	2B.32	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Keep Right (Symbol)	R4-7	2B.33	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Keep Right (Arrow)	R4-7a	2B.33	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Keep Left	R4-8	2B.33	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Keep Left (Arrow)	R4-8a	2B.33	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	-	-
Stay In Lane	R4-9	2B.33	600 x 750 (24 x 30)	-	-	-	-
All Traffic (Arrow)	R4-11-DE	2B.33	900 x 600 (36 x 24)	-	-	-	1200 x 900 (48 x 36)
Do Not Enter	R5-1	2B.34	750 x 750 (30 x 30)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	-	-
Wrong Way	R5-1a	2B.35	900 x 600 (36 x 24)	900 x 600 (36 x 24)	1050 x 750 (42 x 30)	-	-
No Trucks (Symbol)	R5-2	2B.36	600 x 600 (24 x 24)	750 x 750 (30 x 30)	900 x 900 (36 x 36)	-	1200 x 1200 (48 x 48)
No Motor Vehicles	R5-3	2B.36	600 x 600 (24 x 24)	-	-	-	-
No Bicycles	R5-6	2B.36	600 x 600 (24 x 24)	750 x 750 (30 x 30)	900 x 900 (36 x 36)	-	1200 x 1200 (48 x 48)
Pedestrians and Bicycles Prohibited	R5-10b	2B.36	750 x 450 (30 x 18)	-	-	-	-
One Way	R6-1R, 1L	2B.37	900 x 300 (36 x 12)	1350 x 450 (54 x 18)	1350 x 450 (54 x 18)	-	-
One Way	R6-2R, 2L	2B.37	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	900 x 1200 (36 x 48)	450 x 600 (18 x 24)	-
Divided Highway Crossing	R6-3, 3a	2B.38	750 x 600 (30 x 24)	900 x 750 (36 x 30)	-	600 x 450 (24 x 18)	-
No Parking	R7-2-DE	2B.39	300 x 450 (12 x 18)	-	-	-	450 x 600 (18 x 24)
No Stopping Standing or Parking	R7-4-DE	2B.39	300 x 450 (12 x 18)	450 x 600 (18 x 24)	450 x 600 (18 x 24)	-	
Reserved Parking	R7-8, 8-DE	2B.39	300 x 450 (12 x 18)	-	-	-	-

Table 2B-1. Regulatory Sign Sizes (Sheet 3 of 4)

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Sign	DelDOT MUTCD Code	Section	Conventional Road	Expressway	Freeway	Minimum	Oversized
Permitted Parking with Time Limit	R7-108-DE, 108-DE1	2B.39	300 x 450 (12 x 18)	-	-	-	-
Tow Away Zone	R7-201a	2B.40	300 x 150 (12 x 6)	-	-	-	-
Begin, End (for use with parking signs)	R7-202a-DE, 202a-DE1	2B.40	300 x 150 (12 x 6)	-	-	-	-
Snow Route	R7-203-DE	2B.40	450 x 600 (18 x 24)	-	-	-	-
Emergency Parking Only	R8-4	2B.42	750 x 600 (30 x 24)	750 x 600 (30 x 24)	1200 x 900 (48 x 36)	-	-
Emergency Stopping Only	R8-7	2B.42	750 x 600 (30 x 24)	1200 x 900 (48 x 36)	-	-	-
No Pedestrian Crossing (Symbol)	R9-3a	2B.44	450 x 450 (18 x 18)	600 x 600 (24 x 24)	-	-	-
Hitchhiking Prohibition (Symbol)	R9-4a	2B.43	600 x 600 (24 x 24)	-	-	-	-
Sidewalk Closed	R9-9	6F.13	750 x 450 (30 x 18)	-	-	-	-
Sidewalk Closed, Use Other Side	R9-10	6F.13	1200 x 600 (48 x 24)	-	-	-	-
Sidewalk Closed Ahead, Cross Here	R9-11	6F.13	1200 x 900 (48 x 36)	-	-	-	-
Sidewalk Closed, Cross Here	R9-11a	6F.13	1200 x 600 (48 x 24)	-	-	-	-
Pedestrian Traffic Signal Signs	R10-2a, 3, 3b, 3d, 4b	2B.45	225 x 300 (9 x 12)	-	-	-	-
Left on Green Arrow Only	R10-5	2B.45	600 x 750 (24 x 30)	-	-	-	1200 x 1500 (48 x 60)
Stop Here on Red (Straight Arrow)	R10-6	2B.45	600 x 900 (24 x 36)	-	-	-	-
Stop Here on Red (Curved Arrow)	R10-6a	2B.45	600 x 750 (24 x 30)	-	-	-	-
Do Not Block Intersection	R10-7	2B.45	600 x 750 (24 x 30)	-	-	-	-
Do Not Block Driveway	R10-7-DE	2B.45	300 x 450 (12 x 18)	-	-	-	-
Left (Right) Turn Signal	R10-10	2B.45	600 x 750 (24 x 30)	-	-	-	-
No Turn on Red (Ball)	R10-11	2B.45	600 x 750 (24 x 30)	600 x 750 (24 x 30)	-	450 x 600 (18 x 24)	900 x 1200 (36 x 48)
No Turn on Red (Arrow)	R10-11-DE	2B.45	600 x 750 (24 x 30)	600 x 750 (24 x 30)	-	450 x 600 (18 x 24)	-
Left Turn Yield on Green (Ball)	R10-12	2B.45	600 x 750 (24 x 30)	600 x 750 (24 x 30)	-	-	-
Emergency Signal	R10-13	2B.45	900 x 600 (36 x 24)	-	-	-	-
Turning Traffic Must Yield to Pedestrians	R10-15	2B.45	750 x 900 (30 x 36)	-	-	-	-
U-Turn Yield to Right Turn	R10-16	2B.45	750 x 900 (30 x 36)	-	-	-	-
Right Turn Yield to U-Turn	R10-16-DE	2B.45	750 x 900 (30 x 36)	-	-	-	-
Turn on Flashing Red with Caution After Stop	R10-17-DE	2B.45	750 x 750 (30 x 30)	750 x 750 (30 x 30)	-	-	-
Right on Red Arrow After Stop	R10-17a	2B.45	750 x 900 (30 x 36)	-	-	-	-
Red Light Photo Enforced	R10-19-DE	2B.46	750 x 750 (30 x 30)	1200 x 1200 (48 x 48)	-	-	-
MON-FRI (and times) (3 lines)	R10-20a	2B.45	600 x 600 (24 x 24)	-	-	-	-
SUNDAY (and times) (2 lines)	R10-20a	2B.45	600 x 450 (24 x 18)	-	-	-	-
Road Closed	R11-2	2B.48	1200 x 750 (48 x 30)	-	-	-	-
Road Closed – Local Traffic Only	R11-3a, 3b, 4	2B.48	1500 x 750 (60 x 30)	-	-	-	-
Weight Limit	R12-1	2B.49	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	-	-	900 x 1200 (36 x 48)

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Table 2B-1. Regulatory Sign Sizes *(Sheet 4 of 4)*

Sign	DelDOT MUTCD Code	Section	Conventional Road	Expressway	Freeway	Minimum	Oversized
No Trucks Over 2 Axles Except Local Services	R12-3-DE	2B.49	600 x 900 (24 x 36)	-	-	-	-
Weight Limit (Symbol)	R12-5-DE	2B.49	750 x variable (30 x variable)	750 x variable (30 x variable)	750 x variable (30 x variable)	-	-
Truck Route	R14-1	2B.51	600 x 450 (24 x 18)	-	-	-	-
Railroad Crossbuck	R15-1	8B.03	1200 x 225 (48 x 9)	-	-	-	-
Number of Tracks	R15-2	8B.03	675 x 450 (27 x 18)	-	-	-	-
Exempt	R15-3	8B.05	600 x 300 (24 x 12)	-	-	-	-
Seatbelt	R16-1	2B.54	450 x 600 (18 x 24)	-	-	-	-
Signal Permit	SR1-1-DE	2B.54	100 x 200 (4 x 8)	-	-	-	-
No Dumping	SR1-11-DE	2B.54	600 x 300 (24 x 12)	-	-	-	-
No Littering	SR1-12-DE	2B.54	600 x 300 (24 x 12)	-	-	-	-
Dog Waste	SR1-13-DE	2B.54	450 x 600 (18 x 24)	-	-	300 x 450 (12 x 18)	-
No Fishing Crabbing or Swimming Between Signs	SR1-14-DE	2B.54	600 x 300 (24 x 18)	-	-	-	-
State Property No Trespassing	SR1-15-DE	2B.54	600 x 300 (24 x 12)	-	-	-	-
NOTICE MOVE OVER OR REDUCE SPEED FOR STOPPED EMERGENCY VEHICLES	SR1-18-DE	2B.54	1050 x 1500 (42 x 60)	-	-	-	-

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Section 2B.05 <u>STOP Sign Applications</u>

Guidance:

STOP signs should be used if engineering judgment indicates that one or more of the following conditions exist:

A. 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. Street entering a through highway or street;
C. Unsignalized intersection in a signalized area; and/or
D. High speeds, restricted view, or crash records indicate a need for control by a STOP sign.

Standard:

Because the potential for conflicting commands could create driver confusion, STOP signs shall not be installed at intersections where traffic control signals are installed and operating except as noted in Section 4D.01.

Portable or part-time STOP signs shall not be used except for emergency and temporary traffic control zone purposes.

Guidance:

STOP signs should not be used for speed control.

STOP signs should be installed in a manner that minimizes the numbers of vehicles having to stop. At intersections where a full stop is not necessary at all times, consideration should be given to using less restrictive measures such as YIELD signs (see Section 2B.08).

Once the decision has been made to install two-way stop control, the decision regarding the appropriate street to stop should be based on engineering judgment. In most cases, the street carrying the lowest volume of traffic should be stopped.

A STOP sign should not be installed on the major street unless justified by a traffic engineering study.

Support:

The following are considerations that might influence the decision regarding the appropriate street upon which to install a STOP sign where two streets with relatively equal volumes and/or characteristics intersect:

A. Stopping the direction that conflicts the most with established pedestrian crossing activity or school walking routes;
B. Stopping the direction that has obscured vision, dips, or bumps that already require drivers to use lower operating speeds;
C. Stopping the direction that has the longest distance of uninterrupted flow approaching the intersection; and
D. Stopping the direction that has the best sight distance to conflicting traffic.

The use of the STOP sign at highway-railroad grade crossings is described in Section 8B.08. **DelDOT Rev.**

Section 2B.06 STOP Sign Placement

Standard:

The STOP sign shall be installed on the right side of the approach to which it applies. When the STOP sign is installed at this required location and the sign visibility is restricted, a Stop Ahead sign (see Section 2C.29) shall be installed in advance of the STOP sign.

The STOP sign shall be located as close as practical to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate.

STOP signs and YIELD signs shall not be mounted on the same post.

Guidance:

Other than a DO NOT ENTER sign, no sign should be mounted back-to-back with a STOP sign in a manner that obscures the shape of the STOP sign.

Support:

Section 2A.16 contains additional information about separate and combined mounting of other signs with STOP signs.

Guidance:

Stop lines, when used to supplement a STOP sign, should be located at the point where the road user should stop (see Section 3B.16).

If only one STOP sign is installed on an approach, the STOP sign should not be placed on the far side of the intersection.

Where two roads intersect at an acute angle, the STOP sign should be positioned at an angle, or shielded, so that the legend is out of view of traffic to which it does not apply.

Where there is a marked crosswalk at the intersection, the STOP sign should be installed in advance of the crosswalk line nearest to the approaching traffic.

Option:

At wide-throat intersections or where two or more approach lanes of traffic exist on the signed approach, observance of the stop control may be improved by the installation of an additional STOP sign on the left side of the road and/or the use of a stop line. At channelized intersections, the additional STOP sign may be effectively placed on a channelizing island.

Support:

Figure 2A-2 shows examples of some typical placements of STOP signs.

Section 2B.07 Multiway Stop Applications

Support:

Multiway stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multiway stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multiway stop control is used where the volume of traffic on the intersecting roads is approximately equal.

The restrictions on the use of STOP signs described in Section 2B.05 also apply to multiway stop applications.

Guidance:

The decision to install multiway stop control should be based on an engineering study.

The following criteria should be considered in the engineering study for a multiway STOP sign installation:

A. Where traffic control signals are justified, the multiway stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
B. A crash problem, as indicated by 5 or more reported crashes in a 12-month period that are susceptible to correction by a multiway stop installation. Such crashes include right- and left-turn collisions as well as right-angle collisions.
C. Minimum volumes:
   1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day, and
   2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour, but
   3. If the 85th-percentile approach speed of the major-street traffic exceeds 65 km/h or exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the above values.
D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Option:

Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts;
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop; and
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multiway stop control would improve traffic operational characteristics of the intersection.

Section 2B.08 YIELD Sign (R1-2) and Supplemental Plaques (R1-2a, R1-2a-DE, R1-2a-DE1, and R1-2a-DE2)

DelDOT Rev.

Standard:

The YIELD (R1-2) sign (see Figure 2B-1) shall be a downward-pointing equilateral triangle with a wide red border and the legend YIELD in red on a white background.

Support:

The YIELD sign assigns right-of-way to traffic on certain approaches to an intersection. Vehicles controlled by a YIELD sign need to slow down or stop when necessary to avoid interfering with conflicting traffic.

Option:

A TO ONCOMING TRAFFIC (R1-2a), TO U-TURNING TRAFFIC (R1-2a-DE), or TO TURNING TRAFFIC (R1-2a-DE1) supplemental plaque (see Figure 2B-1) may be used to supplement the YIELD message.

DelDOT Rev.

A NO MERGE AREA (R1-2a-DE2) supplemental plaque may be installed below a YIELD sign where no acceleration lane is provided.

Section 2B.09 <u>YIELD Sign Applications</u>

Option:

YIELD signs may be used instead of STOP signs, except at multiway stops, if engineering judgment indicates that one or more of the following conditions exist: **DelDOT Rev.**

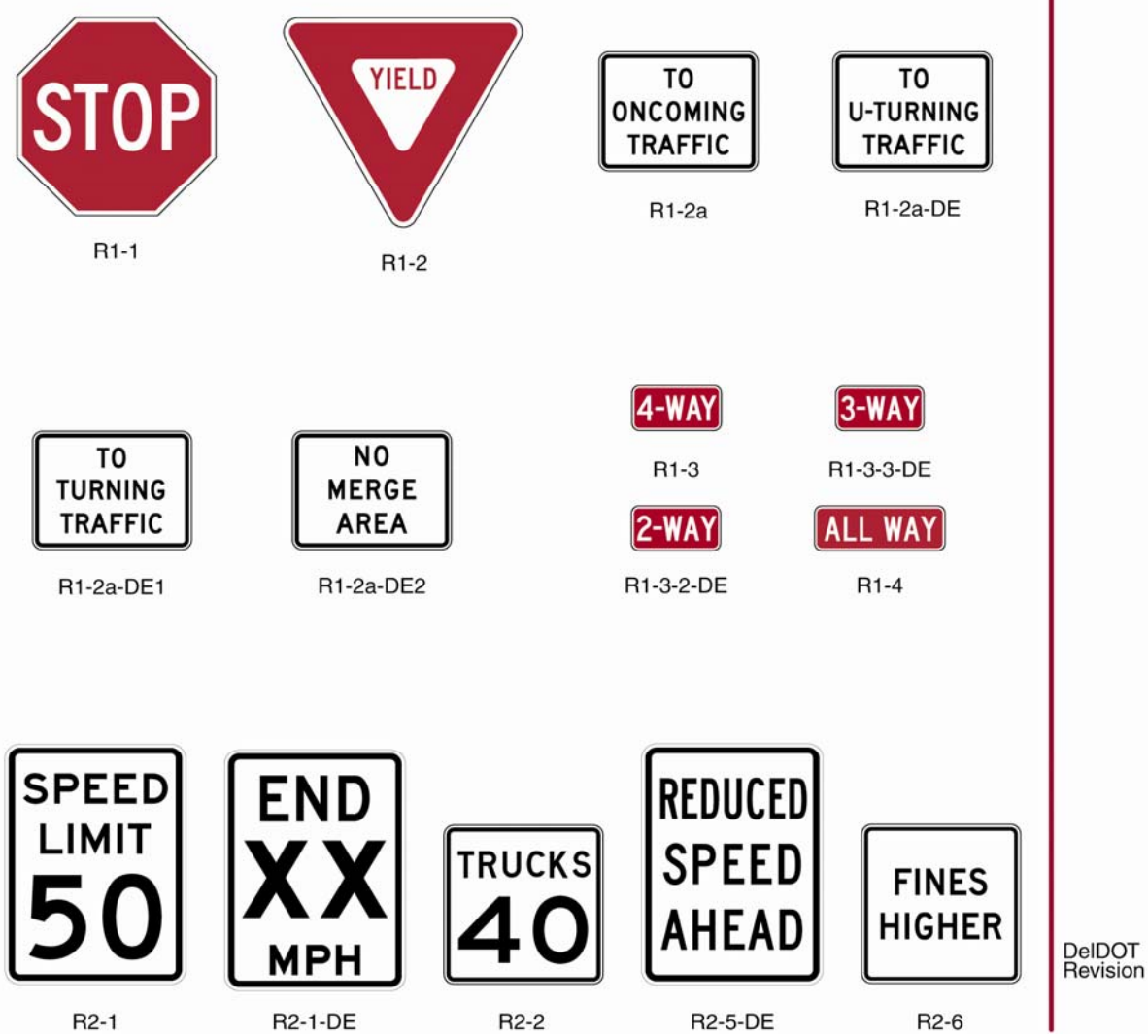
A. When the ability to see all potentially conflicting traffic is sufficient to allow a road user traveling at the posted speed, the 85th-percentile speed, or the statutory speed to pass through the intersection or to stop in a reasonably safe manner.
B. If controlling a merge-type movement on the entering roadway where acceleration geometry and/or sight distance is not adequate for merging traffic operation.
C. The second crossroad of a divided highway, where the median width at the intersection is 9 m (30 ft) or greater. In this case, a STOP sign may be installed at the entrance to the first roadway of a divided highway, and a YIELD sign may be installed at the entrance to the second roadway.
D. An intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign.

Standard:

A YIELD (R1-2) sign shall be used to assign right-of-way at the entrance to a roundabout intersection.

A YIELD (R1-2) sign shall not be installed for purpose of speed control.

Figure 2B-1. STOP, YIELD, Speed Limit, and FINES HIGHER Signs



DelDOT Revision

Section 2B.10 YIELD Sign Placement

Standard:

The YIELD sign shall be installed on the right side of the approach to which it applies. YIELD signs shall be placed on both the left and right sides of approaches to roundabout intersections with more than one lane on the signed approach where raised splitter islands are available on the left side of the approach. When the YIELD sign is installed at this required location and the sign visibility is restricted, a Yield Ahead sign (see Section 2C.29) shall be installed in advance of the YIELD sign.

The YIELD sign shall be located as close as practical to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate.

YIELD signs and STOP signs shall not be mounted on the same post.

Guidance:

Other than a DO NOT ENTER sign, no sign should be mounted back-to-back with a YIELD sign in a manner that obscures the shape of the YIELD sign.

Support:

Section 2A.16 contains additional information about separate and combined mounting of other signs with YIELD signs.

Guidance:

Yield lines, when used to supplement a YIELD sign, should be located at a point where the road user should yield (see Section 3B.16).

Where two roads intersect at an acute angle, the YIELD sign should be positioned at an angle, or shielded, so that the legend is out of view of traffic to which it does not apply.

Except at roundabout intersections, where there is a marked crosswalk at the intersection, the YIELD sign should be installed in advance of the crosswalk line nearest to the approaching traffic.

At a roundabout intersection, to prevent circulating vehicles from yielding unnecessarily, the face of the YIELD sign should not be visible from the circulatory roadway.

Option:

At wide-throat intersections or where two or more approach lanes of traffic exist on the signed approach, observance of the yield control may be improved by the installation of an additional YIELD sign on the left side of the road and/or the use of a yield line. At channelized intersections, the additional YIELD sign may be effectively placed on a channelizing island.

Section 2B.11 Yield Here To Pedestrians Sign (R1-5)

Standard:

If yield lines are used in advance of an unsignalized marked midblock crosswalk, Yield Here To Pedestrians (R1-5) signs (see Figure 2B-2) shall be placed 6.1 to 15 m (20 to 50 ft) in advance of the nearest crosswalk line (see Section 3B.16 and Figure 3B-15). **DelDOT Rev.**

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

Option:

The In-Street Pedestrian Crossing (R1-6 or R1-6a) sign (see Figure 2B-2) may be used to remind road users of laws regarding right of way at an unsignalized pedestrian crossing. The legend STATE LAW may be shown at the top of the sign. The legends STOP FOR or YIELD TO may be used in conjunction with the appropriate symbol.

Guidance:

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

Standard:

The In-Street Pedestrian Crossing sign shall not be used at signalized locations.

Current Delaware State Law indicates that drivers must yield to pedestrians at unsignalized intersections. The status of this law shall be confirmed with the Chief Traffic Engineer or a designee prior to installing the In-Street Pedestrian Crossing sign. DelDOT Rev.

These signs shall only be used when approved by the Chief Traffic Engineer or a designee.

The STOP FOR legend shall only be used if Delaware State Law specifically requires that a driver must stop for a pedestrian in a crosswalk

If used, the In-Street Pedestrian Crossing sign shall have a black legend (except for the red STOP or YIELD sign symbols) and border on either a white and/or fluorescent yellow-green background.

If the In-Street Pedestrian Crossing sign is placed in the roadway, the sign support shall comply with the breakaway requirements of the latest edition of AASHTO's "Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" (see Page i).

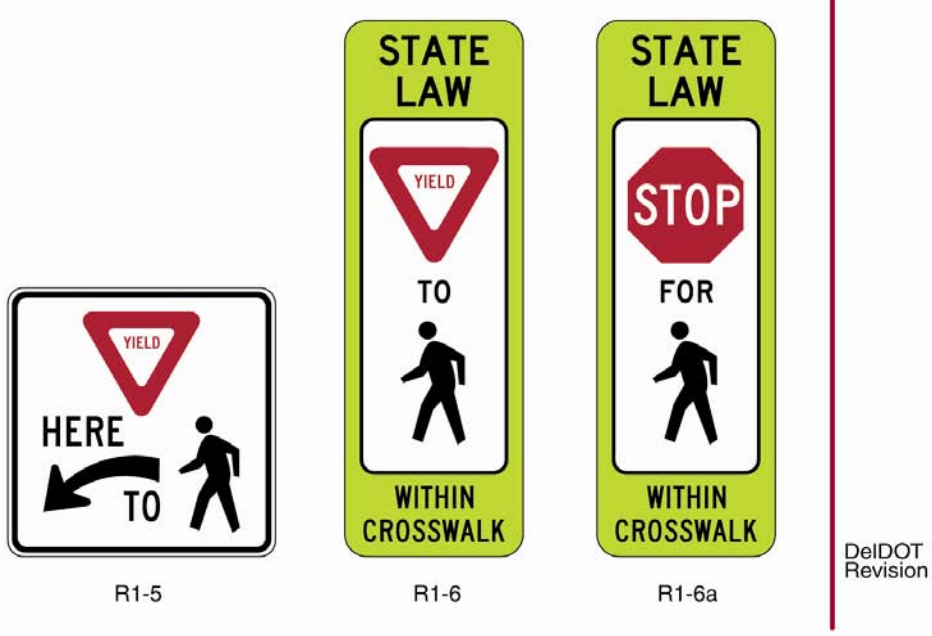
Support:

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

Option:

The In-Street Pedestrian Crossing sign may be used seasonably to prevent damage in winter because of plowing operations, and may be removed at night if the pedestrian activity at night is minimal.

Figure 2B-2. Unsignalized Pedestrian Crosswalk Sign



Section 2B.13 <u>Speed Limit (R2-1), END XX MPH (R2-1-DE), Reduced Speed Ahead (R2-5-DE) Signs</u>

Standard:

After an engineering study has been made in accordance with established traffic engineering practices, the Speed Limit (R2-1) sign (see Figure 2B-1) shall display the limit established by law, ordinance, regulation, or as adopted by DelDOT. The speed limit shall be posted in multiples of 10 km/h or 5 mph. DelDOT Rev.

Guidance:

At least once every 5 years, DelDOT should reevaluate non-statutory speed limits on segments of their roadways that have undergone a significant change in roadway characteristics or surrounding land use since the last review.

When a speed limit is to be posted, it should be within 10 km/hr or 5 mph of the 85th-percentile speed of free-flowing traffic.

Option:

Other factors that may be considered, when establishing speed limits, are the following:

A. Road characteristics shoulder condition, grade, horizontal and vertical alignment, and sight distance;
B. The pace speed
C. Roadside development and environment;
D. Parking practices and pedestrian activity;
E. Reported crash experience for at least a 12-month period;

A changeable message sign that changes the speed limit for traffic and ambient conditions may be installed provided that the appropriate speed limit is shown at the proper times.

A changeable message sign that displays to approaching drivers the speed at which they are traveling may be installed in conjunction with a Speed Limit sign, if approved by the Chief Traffic Engineer or a designee. **DelDOT Rev.**

Guidance:

If a changeable message sign displaying approach speeds is installed, the legend YOUR SPEED XX km/h (MPH) or such similar legend should be shown. The color of the changeable message legend should be a yellow legend on a black background or the reverse of these colors.

Support:

Advisory Speed signs are discussed in Sections 2C.36 and 2C.46 and Temporary Traffic Control Zone Speed signs are discussed in Part 6.

Option:

The REDUCED SPEED AHEAD (R2-5-DE) sign may be used to inform road users of a reduced speed zone when engineering judgment indicates the need for advance notice to comply with the posted speed limit. This sign should not be used in urban areas where speeds are relatively low.

Standard:

The REDUCED SPEED AHEAD (R2-5-DE) sign shall be followed by a SPEED LIMIT (R2-1) sign installed at the beginning of the zone where the speed limit applies.

Guidance: **DelDOT Rev.**

The REDUCED SPEED AHEAD (R2-5-DE) sign should be replaced with the Speed Reduction (W3-5) warning sign (see Section 2C.30) for all new sign installations.

Option:

Where a speed limit increase occurs along a route, such as at the exit of a small town, an END XX MPH (R2-1-DE) sign (See Figure 2B-1) may be used to define the point at which the lower speed limit ends.

Section 2B.14 <u>Truck Speed Limit Sign (R2-2)</u>

Standard:

Where a special speed limit applies to trucks or other vehicles, the legend TRUCKS XX or such similar legend shall be shown on the same panel as the Speed Limit sign or on a separate R2-2 sign (see Figure 2B-1) below the standard legend.

The Truck Speed Limit sign shall only be used when approved by the Chief Traffic Engineer or a designee and an engineering study determines a need.

Section 2B.15 <u>Night Speed Limit Sign (R2-3) (NOT APPLICABLE IN DELAWARE)</u> **DelDOT Rev.**

Section 2B.16 <u>Minimum Speed Limit Sign (R2-4) (NOT APPLICABLE IN DELAWARE)</u>

Section 2B.17 FINES HIGHER Plaque (R2-6)

Option:

The FINES HIGHER (R2-6) plaque (see Figure 2B-1) may be used to advise road users when increased fines are imposed for traffic violations within designated roadway segments.

The FINES HIGHER plaque may be mounted below an applicable regulatory or warning sign in a temporary traffic control zone, a school zone, or other applicable designated zones.

The following may be mounted below the FINES HIGHER plaque:

A. A supplemental plaque specifying the times that the higher fines are in effect (similar to the S4-1 plaque shown in Figure 7B-1); or
B. A supplemental plaque WHEN CHILDREN (WORKERS) ARE PRESENT; or
C. A supplemental plaque WHEN FLASHING (similar to the S4-4 plaque shown in Figure 7B-1) if used in conjunction with a yellow flashing beacon.

The legend FINES HIGHER may be replaced by multiple values such as FINES DOUBLE or FINES TRIPLE, or by a specific value such as $150 FINE.

Standard:

The FINES HIGHER plaque shall be a rectangle with a black legend and border on a white background.

All supplemental plaques mounted below the FINES HIGHER plaque shall be rectangles with black legends and borders on white backgrounds.

The FINES HIGHER plaque shall include a SCHOOL or other applicable designated zone plaque mounted above the applicable regulatory or warning sign. The SCHOOL supplemental plaque shall be rectangular in shape with a black legend and border on a yellow or fluorescent yellow-green background (same as the S4-3 plaque).

Guidance:

If used, the FINES HIGHER plaque should be located at the beginning of the temporary traffic control zone, school zone, or other applicable designated zone and just beyond any interchanges, major intersections, or other major traffic generators.

The FINES HIGHER plaque should be limited to locations where work is actually underway, or to locations where the roadway, shoulder, or other conditions, including the presence of a school, require a speed reduction or extra caution on the part of the road user. **DelDOT Rev.**

Section 2B.18 Location of Speed Limit Signs

Standard:

Speed Limit (R2-1) signs, indicating speed limits for which posting is required by law, shall be located at the points of change from one speed limit to another.

At the end of the section to which a speed limit applies, a Speed Limit sign showing the next speed limit shall be installed. Additional Speed Limit signs shall be installed beyond major intersections and at other locations where it is necessary to remind road users of the speed limit that is applicable.

Speed Limit signs indicating the statutory speed limits shall be installed at entrances to the State and at jurisdictional boundaries of metropolitan areas.

Section 2B.19 Turn Prohibition Signs (R3-1 through R3-4, and R3-18)

Standard:

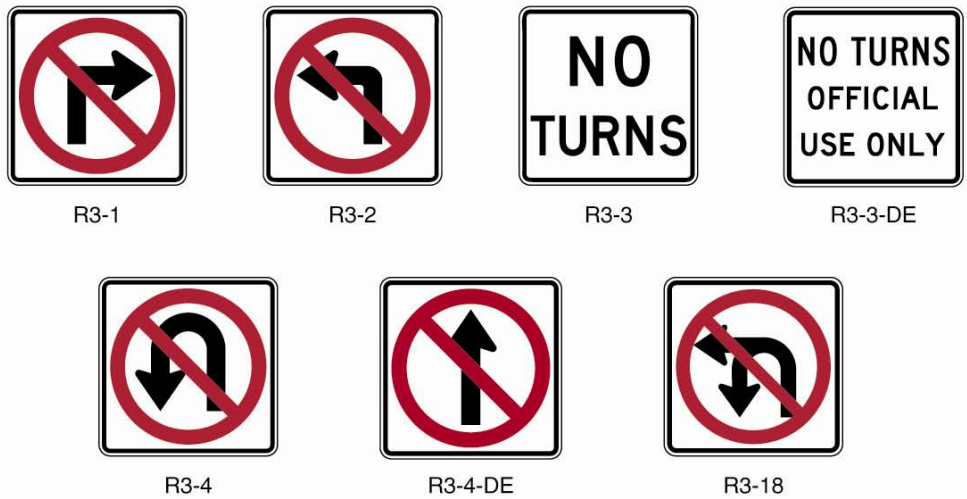
Except as noted in the Option, where turns are prohibited, Turn Prohibition signs shall be installed.

Guidance:

Turn Prohibition signs should be placed where they will be most easily seen by road users who might be intending to turn.

If No Right Turn (R3-1) signs (see Figure 2B-3) are used, at least one should be placed either over the roadway or at a right corner of the intersection.

Figure 2B-3. Turn Prohibition Signs



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If No Left Turn (R3-2) signs (see Figure 2B-3) are used, at least one should be placed either over the roadway, at the far left corner of the intersection, on a median, or in conjunction with the STOP sign or YIELD sign located on the near right corner.

Except as noted in the Option, if NO TURNS (R3-3) signs (see Figure 2B-3) are used, two signs should be used, one at a location specified for a No Right Turn sign and one at a location specified for a No Left Turn sign.

If No U-Turn (R3-4) signs (see Figure 2B-3) are used, at least one should be used at a location specified for No Left Turn signs.

If No Thru Movement (R3-4-DE) signs (see Figure 2B-3) are used, at least one should be placed over the roadway. **DelDOT Rev.**

If combination No U-Turn/No Left Turn (R3-18) signs (see Figure 2B-3) are used, at least one should be used at a location specified for No Left Turn signs.

Option:

If signals are present:

A. The No Right Turn sign may be installed adjacent to a signal face viewed by road users in the right lane.
B. The No Left Turn (or No U-Turn or combination No U-Turn/No Left Turn) sign may be installed adjacent to a signal face viewed by road users in the left lane.
C. A NO TURNS sign may be placed adjacent to a signal face viewed by all road users on that approach, or two signs may be used.

If signals are present, an additional Turn Prohibition sign may be ground mounted to supplement the sign mounted overhead.

Where ONE WAY signs are used (see Section 2B.37), Turn Prohibition signs may be omitted.

When the movement restriction applies during certain time periods only, the following Turn Prohibition signing alternatives may be used and are listed in order of preference:

A. Changeable message signs, especially at signalized intersections.
B. Permanently mounted signs incorporating a supplementary legend showing the hours and days during which the prohibition is applicable.

C. Portable signs, installed by proper authority, located off the roadway at each corner of the intersection. The portable signs are only to be used during the time that the turn prohibition is applicable.

Turn Prohibition signs may be omitted at a ramp entrance to an expressway or a channelized intersection where the design is such as to indicate clearly the one-way traffic movement on the ramp or turning lane.

If both left turns and U-turns are prohibited, the R3-18 sign may be used instead of separate R3-2 and R3-4 signs.

The NO TURNS OFFICIAL USE ONLY (R3-3-DE) sign (see Figure 2B-3) should be used to designate locations where unauthorized vehicles are not permitted to make turns. **DelDOT Rev.**

Section 2B.20 <u>Intersection Lane Control Signs (R3-5 through R3-8)</u>

Standard:

Intersection Lane Control signs, if used, shall require road users in certain lanes to turn, shall permit turns from a lane where such turns would otherwise not be permitted, shall require a road user to stay in the same lane and proceed straight through an intersection, or shall indicate permitted movements from a lane.

Intersection Lane Control signs (see Figure 2B-4) shall have three applications:

A. Mandatory Movement Lane Control (R3-5, R3-5R-DE, R3-5a, and R3-7) signs; **DelDOT Rev.**

B. Optional Movement Lane Control (R3-6) sign; and

C. Advance Intersection Lane Control (R3-8 series) signs.

Guidance:

When Intersection Lane Control signs are mounted overhead, each sign should be placed over the lane or a projection of the lane to which it applies.

Standard:

Use of an overhead sign for one approach lane shall not require installation of overhead signs for the other lanes of that approach.

Option: **DelDOT Rev.**

Where the number of through lanes on an approach is two or less, the following Mandatory Movement Lane Control signs (R3-5, R3-6, or R3-8) may be overhead or ground mounted.

Intersection Lane Control signs may be omitted where:

A. Turning bays have been provided by physical construction or pavement markings, and

B. Only the road users using such turning bays are permitted to make a similar turn.

Section 2B.21 <u>Mandatory Movement Lane Control Signs (R3-5, R3-5R-DE, R3-5a, and R3-7)</u>

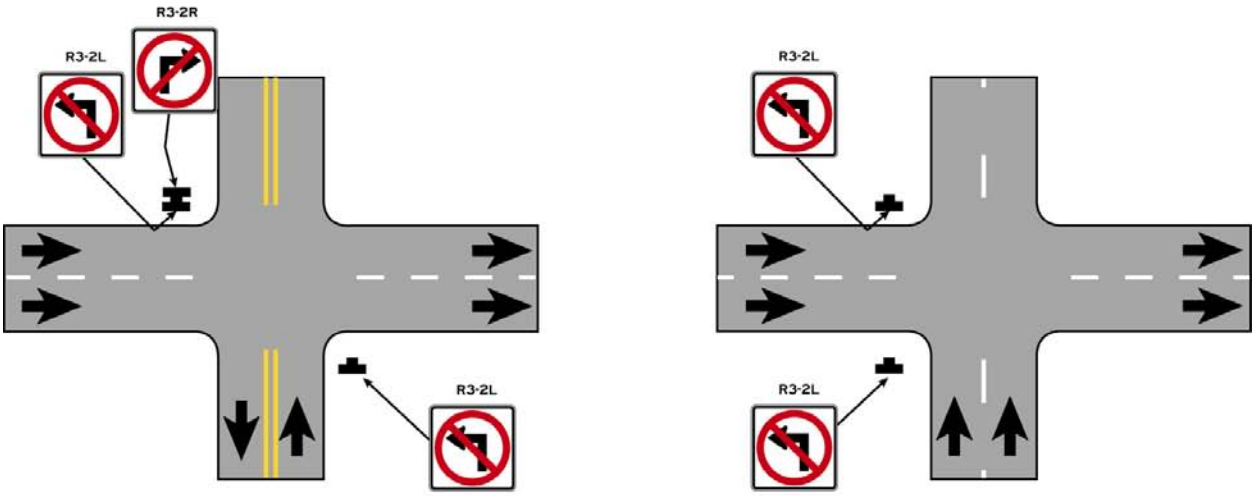
Standard:

If used, Mandatory Movement Lane Control (R3-5, R3-5R-DE, R3-5a, and R3-7) signs (see Figure 2B-4) shall indicate only those vehicle movements that are required from each lane and shall be located where the regulation applies. The R3-5R-DE and R3-7 word message signs shall be for ground mounting only. **DelDOT Rev.**

If the R3-5 sign is ground mounted on a multi-lane approach, a supplemental plaque (see Figure 2B-4), such as LEFT LANE (R3-5b), CENTER LANE (R3-5e), RIGHT LANE (R3-5f), BUS LANE (R3-5g), or LEFT 2 LANES, indicating the lane with the appropriate movement shall be added below.

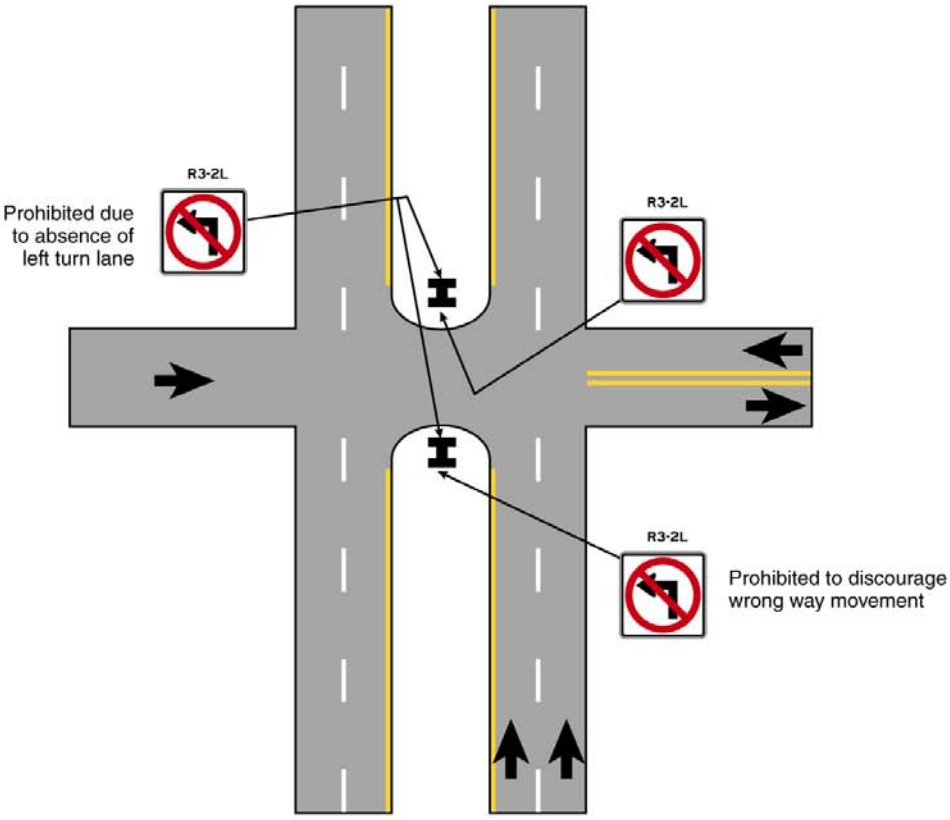
The Mandatory Movement Lane Control (R3-7) sign shall include the legend RIGHT (LEFT) LANE MUST TURN RIGHT (LEFT). The Mandatory Movement Lane Control symbol signs (R3-5 and R3-5a) shall include the legend ONLY.

Figure 2B-3A Example Applications of No Left Turn and No Right Turn (Symbol) Signs
(DelDOT MUTCD Only)



Two-Way/Undivided Road Approaching One Way Road

One-Way, Undivided Road Approaching One Way Road



Divided Highway Median Opening

Guidance:

Mandatory Movement Lane Control signs should be accompanied by lane use arrow markings, especially where traffic volumes are high, where there is a high percentage of commercial vehicles, or where other distractions exist.

Option:

The Straight Through Only (R3-5a) sign may be used to require a road user in a particular lane to proceed straight through an intersection.

When the Mandatory Movement Lane Control sign for a left-turn lane is installed back-to-back with a Keep Right (R4-7) sign, the dimensions of the Mandatory Movement Lane Control (R3-5) sign may be the same as the Keep Right sign.

Except for the R3-7 sign, Mandatory Movement Lane Control signs may be overhead or ground mounted. **DelDOT Rev.**

Section 2B.22 <u>Optional Movement Lane Control Sign (R3-6)</u>

Standard:

If used, the Optional Movement Lane Control (R3-6) sign (see Figure 2B-4) shall be used for two or more movements from a specific lane or to emphasize permitted movements. If used, the Optional Movement Lane Control sign shall be located at the intersection.

If used, the Optional Movement Lane Control sign shall indicate all permissible movements from specific lanes.

Optional Movement Lane Control signs shall be used for two or more movements from a specific lane where a movement, not normally allowed, is permitted.

The Optional Movement Lane Control sign shall not be used alone to effect a turn prohibition.

Section 2B.23 <u>Advance Intersection Lane Control Signs (R3-8 Series)</u>

Option:

Advance Intersection Lane Control (R3-8, R3-8a, R3-8b, and R3-8-DE) signs (see Figure 2B-4) may be used to indicate the configuration of lanes ahead. **DelDOT Rev.**

The word messages ONLY, THRU, or ALL may be used within the border in combination with the arrow symbols of the R3-8, R3-8a, and R3-8b signs.

Guidance:

If used, an Advance Intersection Lane Control sign should be placed at an adequate distance in advance of the intersection so that road users can select the appropriate lane. If used, the Advance Intersection Lane Control sign should be installed either in advance of the tapers or at the beginning of the turn lane.

Section 2B.24 <u>Two-Way Left Turn Only Signs (R3-9a, R3-9b)</u>

Guidance:

Two-Way Left Turn Only (R3-9a (Overhead Mounted) or R3-9b (Ground Mounted)) signs (see Figure 2B-5) should be used in conjunction with the required pavement markings where a nonreversible lane is reserved for the exclusive use of left-turning vehicles in either direction and is not used for passing, overtaking, or through travel.

Option:

The ground-mounted R3-9b sign may be used as an alternate to or a supplement to the overhead-mounted R3-9a sign. The legend BEGIN or END may be used within the border of the main sign itself, or a BEGIN (M4-6-DE1) or END (M4-6) plaque may be mounted immediately above it. **DelDOT Rev.**

Support:

Signing is especially helpful to drivers in areas where the two-way left turn only maneuver is new, in areas subject to environmental conditions that frequently obscure the pavement markings, and on peripheral streets with two-way left turn only lanes leading to an extensive system of routes with two-way left turn only lanes.

Figure 2B-4. Intersection Lane Control Signs

Mandatory

R3-5

R3-5a

R3-5R-DE

R3-7

Optional

R3-6

Advance

R3-8a

R3-8b

R3-8

R3-8-DE

Supplemental

R3-5b

R3-5e

R3-5f

R3-5g

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Figure 2B-5. Center Lane Control Signs

R3-9a Overhead Mounted

R3-9b Ground Mounted

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Section 2B.25 <u>Reversible Lane Control Signs (R3-9d, R3-9f through R3-9i) (NOT APPLICABLE IN DELAWARE)</u>

Figure 2B-6. Location of Reversible Two-Way Left-Turn Signs (NOT APPLICABLE IN DELAWARE)

Table 2B-2. Meanings of Symbols and Legends on Reversible Lane Control Signs (NOT APPLICABLE IN DELAWARE)

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Section 2B.26 <u>Preferential Only Lane Signs (R3-10 through R3-14)

Support:

Preferential only lanes are lanes designated for special traffic uses such as buses, bicycles or right (left) turning vehicles. Preferential only lane treatments might be as simple as restricting a turning lane to a certain class of vehicles during peak periods, or as sophisticated as providing a separate roadway system within a highway corridor for certain vehicles.

Information regarding Preferential Only Lane signs for bicycle lanes is contained in Section 9B.04.

Option:

Preferential only lane assignments may be made on a full-time or part-time basis.

Guidance:

Preferential Only Lane sign spacing should be determined by engineering judgment based on prevailing speed, block length, distances from adjacent intersections, and other considerations.

Support:

The symbol and word message that appears on a particular Preferential Only Lane sign will vary based on the specific type of allowed traffic and on other related operational constraints that have been established for a particular lane. **DelDOT Rev.**

Standard:

When a preferential only lane is established, the Preferential Only Lane signs (see Figure 2B-7 for examples) and pavement markings (see Sections 3B.22 and 3B.23) for these lanes shall be used to advise road users.

Guidance:

Ground-mounted Preferential Only Lane signs should be installed where preferential only lanes are implemented on freeways, expressways, and conventional roads. **DelDOT Rev.**

Support:

The sizes for Preferential Only Lane signs will differ to reflect the design speeds for each type of roadway facility. Table 2B-1 provides sizes for each type of roadway facility.

Guidance:

The size of the ground-mounted Preferential Only Lane Operational signs should remain consistent to accommodate any manual addition or subtraction of a single line of text for each sign. **DelDOT Rev.**

The decision to use a specific ground-mounted or overhead sign for a preferential only lane should be based on an engineering study that considers the available space, the existing signs for adjoining general purpose lanes, roadway and traffic characteristics, the proximity of other overhead signing, the ability to install overhead signs, and any other unique local factors.

Standard:

Preferential Only Lane Signs shall be used in situations where a lane is designated for special traffic uses such as such as bus, taxi, bicycle or right (left) turning vehicle use. Refer to the Federal MUTCD for related standards.

Guidance:

The Preferential Only Lane Ahead (R3-10a, for example) signs should be used for advance notification of preferential only lanes.

Option:

Changeable message signs may be used to supplement static signs where travel conditions change or where multiple types of operational strategies (such as variable vehicle types) are used and varied throughout the day or week to manage the use of, control of, or access to preferential only lanes. **DelDOT Rev.**

Standard:

When changeable message signs (see Section 2A.07) are used as regulatory signs for preferential only lanes, they shall be the required sign size and shall display the required letter height and legend format that corresponds to the type of roadway facility and design speed.

Option:

The ground-mounted Preferential Only Lane Operational (R3-11 series) signs and the overhead Preferential Only Lane Operational (R3-14 series) signs may be used to supplement changeable message signs that are used to convey preferential only lane restrictions.

Where turning movements are not normally permitted in the preferential only lane, but are permitted on an approach to an intersection, the format and words used in the legend in the middle lines on the ground-mounted Preferential Only Lane Operational (R3-11 series) signs and on the overhead Preferential Only Lane Operational (R3-14 series) signs may be modified to accommodate the permitted movements (such as "RIGHT TURNS ONLY").

Figure 2B-7. Example of Preferential Only Lane Sign

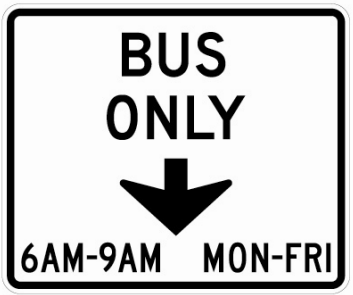
GROUND-MOUNTED PREFERENTIAL ONLY LANE SIGNS

R3-10a

R3-11b

R3-11b-DE

OVERHEAD PREFERENTIAL ONLY LANE SIGNS



R3-14b-DE

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Note:
• The specific legend for a particular application should be based upon local conditions.

Section 2B.27 Preferential Only Lanes for High-Occupancy Vehicles (HOVs) (NOT APPLICABLE IN DELAWARE)

Section 2B.28 Preferential Only Lane Sign Applications and Placement (NOT APPLICABLE IN DELAWARE)

Section 2B.29 DO NOT PASS and NO PASSING ON SHOULDER Signs (R4-1, R4-1-DE)

Option:

The DO NOT PASS (R4-1) sign (see Figure 2B-8) 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.

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The NO PASSING ON SHOULDER (R4-1-DE) sign (see Figure 2B-8) may be used where a traffic engineering study indicates the need to restrict passing on a shoulder.

Support:

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

Section 2B.30 PASS WITH CARE Sign (R4-2) (NOT APPLICABLE IN DELAWARE)

Section 2B.31 SLOWER TRAFFIC KEEP RIGHT Sign (R4-3, R4-3-DE, R4-3-DE1)

Option:

The SLOWER TRAFFIC KEEP RIGHT (R4-3), TRUCKS KEEP RIGHT EXCEPT LEFT TURNS (R4-3-DE), or NO TRUCKS LEFT LANE EXCEPT LEFT TURNS (R4-3-DE1) signs (see Figure 2B-8) may be used on multi-lane roadways to reduce unnecessary lane changing.

Guidance:

If used, the SLOWER TRAFFIC KEEP RIGHT sign should be installed just beyond the beginning of a multi-lane pavement, and at selected locations where there is a tendency on the part of some road users to drive in the left lane (or lanes) below the normal speed of traffic. This sign should not be used on the approach to an interchange or through an interchange area.

Section 2B.32 Slow Moving Traffic Lane Signs (R4-5 and R4-6)

Support:

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The Slow Moving Traffic Lane signs (see Figure 2B-8) are used to direct vehicles into an extra lane that has been provided for slow-moving vehicles or to keep trucks out of the left lane.

Guidance:

If an extra lane has been provided for slow-moving traffic, a SLOWER TRAFFIC KEEP RIGHT (R4-3) sign, TRUCKS USE RIGHT LANE (R4-5) sign, or other appropriate sign should be installed at the beginning of the lane. A TRUCK LANE (R4-6) sign, with the appropriate distance shown, should be installed in advance of the lane.

Option:

The SLOWER TRAFFIC KEEP RIGHT sign may be used as a supplement or as an alternative to the TRUCKS USE RIGHT LANE sign. Both signs may be used on multi-lane roadways to improve capacity and reduce lane changing.

Guidance:

If an extra lane has been provided for slow-moving traffic, a Lane Ends sign (see Section 2C.33) should be installed in advance of the point where the extra lane ends. Appropriate pavement markings should be installed at both the beginning and the end of the extra lane (see Section 3B.09 and Figure 3B-12).

Section 2B.33 Keep Right and Keep Left Signs (R4-7, R4-7a, R4-8, R4-8a, R4-9, R4-11-DE)

Option:

The Keep Right (R4-7) sign (see Figure 2B-8) may be used at locations where it is necessary for traffic to pass only to the right of a roadway feature or obstruction. The Keep Left (R4-8) sign (see Figure 2B-8) may be used at locations where it is necessary for traffic to pass only to the left of a roadway feature or obstruction. The STAY IN LANE (R4-9) (see Figure 2B-8) sign may be used on multi-lane highways where lane changing is prohibited by solid white lines. The ALL TRAFFIC (R4-11-DE) sign (see Figure 2B-8) may be used where it is necessary for all traffic to turn left or right.

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Guidance:

If used, the Keep Right sign should be installed as close as practical to approach ends of raised medians, parkways, islands, underpass piers, and at other locations where it is not readily apparent that traffic is required to keep to the right. The sign should be mounted on the face of or just in front of a pier or other obstruction separating opposite directions of traffic in the center of the highway such that traffic will have to pass to the right of the sign.

Standard:

The Keep Right sign shall not be installed on the right side of the roadway in a position where traffic must pass to the left of the sign.

Option:

The Keep Right sign may be omitted at intermediate ends of divisional islands and medians.

Word message KEEP RIGHT (LEFT) with an arrow (R4-7a, R4-8a) signs (see Figure 2B-8) may be used instead of the R4-7 or R4-8 symbol signs.

Where the obstruction obscures the Keep Right sign, the minimum placement height may be increased for better sign visibility.

Section 2B.34 DO NOT ENTER Sign (R5-1)

Standard:

The DO NOT ENTER (R5-1) sign (see Figure 2B-9) shall be used where traffic is prohibited from entering a restricted roadway.

Guidance:

The DO NOT ENTER sign, if used, should be placed directly in view of a road user at the point where a road user could wrongly enter a divided highway, one-way roadway, or ramp (see Figure 2B-10). The sign should be mounted on the right side of the roadway, facing traffic that might enter the roadway or ramp in the wrong direction.

If the DO NOT ENTER sign would be visible to traffic to which it does not apply, the sign should be turned away from, or shielded from, the view of that traffic.

Option:

The DO NOT ENTER sign may be installed where it is necessary to emphasize the one-way traffic movement on a ramp or turning lane.

A second DO NOT ENTER sign on the left side of the roadway may be used, particularly where traffic approaches from an intersecting roadway (see Figure 2B-10).

Section 2B.35 WRONG WAY Sign (R5-1a)

Option:

The WRONG WAY (R5-1a) sign (see Figure 2B-9) may be used as a supplement to the DO NOT ENTER sign where an exit ramp intersects a crossroad or a crossroad intersects a one-way roadway in a manner that does not physically discourage or prevent wrong-way entry (see Figure 2B-10).

Guidance:

If used, the WRONG WAY sign should be placed at a location along the exit ramp or the one-way roadway farther from the crossroad than the DO NOT ENTER sign (see Section 2E.50).

Figure 2B-8. Passing, Keep Right, and Truck Lane Signs

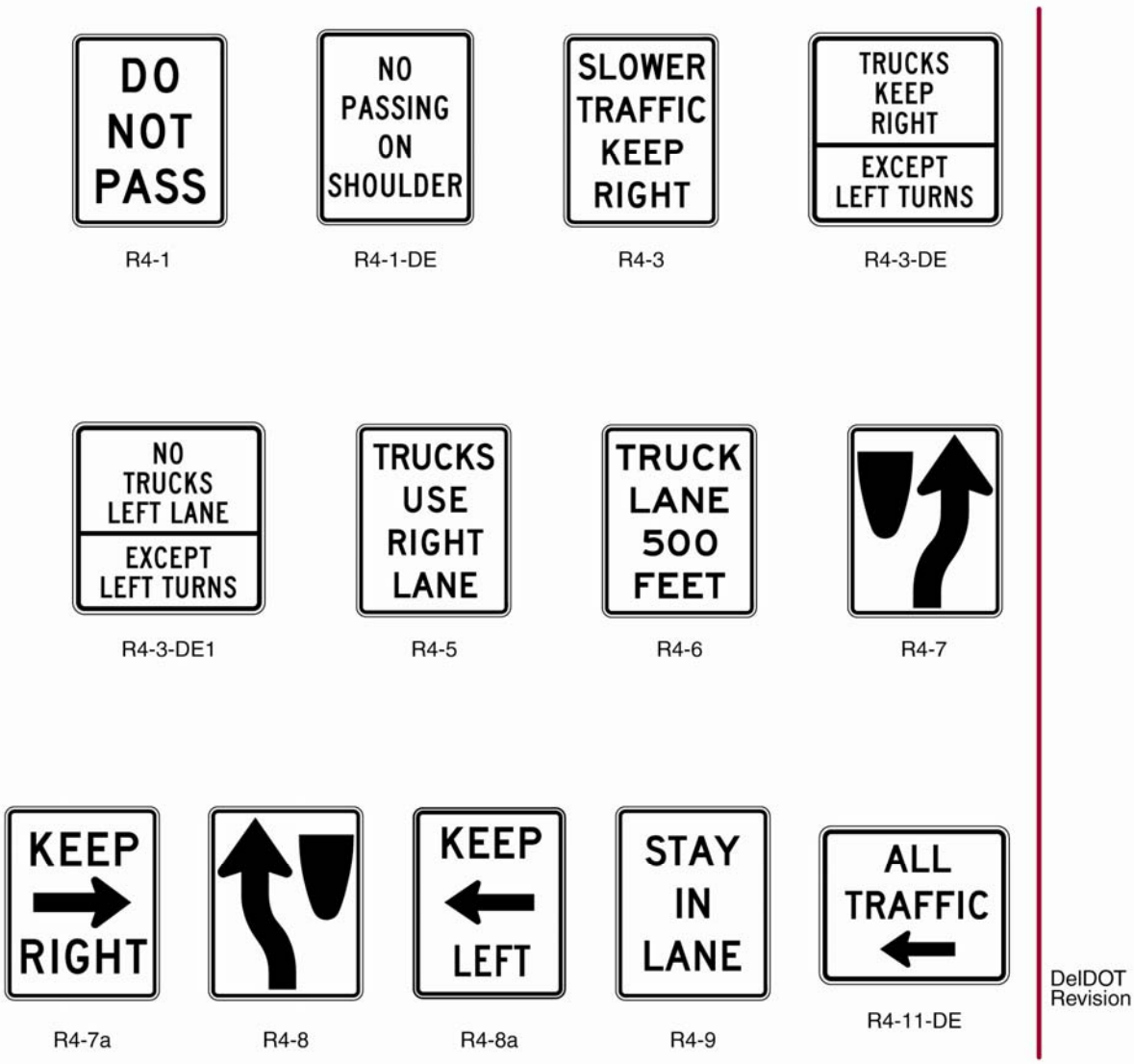

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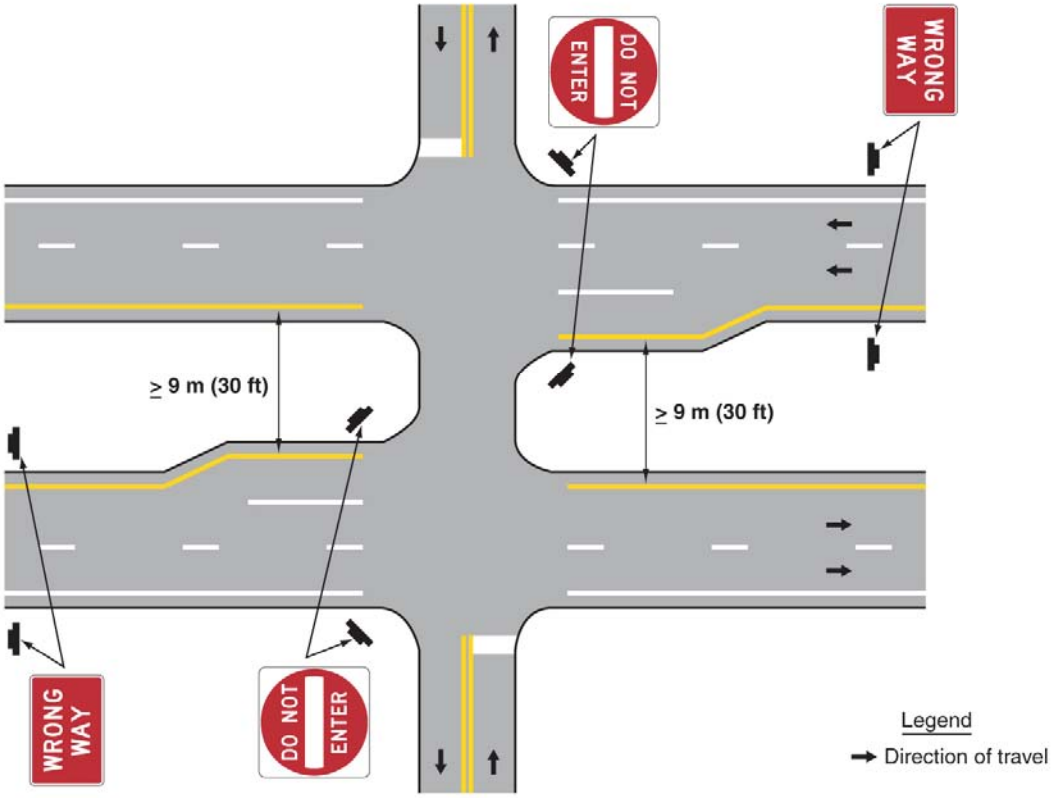
Figure 2B-9. Traffic Prohibition Signs

Figure 2B-10. Example of Wrong-Way Signing for a Divided Highway with a Median Width of 9 m (30 ft) or Greater



Section 2B.36 Selective Exclusion Signs

Support:

Selective Exclusion signs (see Figure 2B-9) give notice to road users that State or local statutes or ordinances exclude designated types of traffic from using particular roadways or facilities.

Standard:

If used, Selective Exclusion signs shall clearly indicate the type of traffic that is excluded.

Support:

Typical exclusion messages include:

A. No Trucks (R5-2);
B. NO MOTOR VEHICLES (R5-3);
C. No Bicycles (R5-6)

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Option:

Appropriate combinations or groupings of these legends into a single sign, such as PEDESTRIANS AND BICYCLES PROHIBITED (R5-10b) may be used.

Guidance:

If an exclusion is governed by vehicle weight, a Weight Limit sign (see Section 2B.49) should be used instead of a Selective Exclusion sign.

The Selective Exclusion sign should be placed on the right side of the roadway at an appropriate distance from the intersection so as to be clearly visible to all road users turning into the roadway that has the exclusion. The No Pedestrian Crossing (R9-3a) sign (see Figure 2B-18) should be installed so as to be clearly visible to pedestrians at a location where an alternative route is available.

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Option:

The No Pedestrian Crossing (R9-3a) sign may also be used at underpasses or elsewhere where pedestrian facilities are not provided.

Section 2B.37 ONE WAY Signs (R6-1, R6-2)

Standard:

Except as noted in the Option, the ONE WAY (R6-1 or R6-2) sign (see Figure 2B-11) shall be used to indicate streets or roadways upon which vehicular traffic is allowed to travel in one direction only.

ONE WAY signs shall be placed parallel to the one-way street at all alleys and roadways that intersect one-way roadways as shown in Figures 2B-12 through 2B-15.

Guidance:

Where divided highways are separated by median widths at the intersection itself of 9 m (30 ft) or more, ONE WAY signs should be placed, visible to each crossroad approach, on the near right and far left corners of each intersection with the directional roadways as shown in Figures 2B-12 and 2B-13.

Option:

ONE WAY signs may be omitted on the one-way roadways of divided highways, where the design of interchanges indicates the direction of traffic on the separate roadways.

ONE WAY signs may be omitted (see Figure 2B-14) at intersections with divided highways that have median widths at the intersection itself of less than 9 m (30 ft).

Standard:

At unsignalized intersections, ONE WAY signs shall be placed on the near right and the far left corners of the intersection facing traffic entering or crossing the one-way street.

At signalized intersections, ONE WAY signs shall be placed either near the appropriate signal faces, on the poles holding the traffic signals, on the mast arm or span wire holding the signals, or at the locations specified for unsignalized intersections.

Section 2B.38 Divided Highway Crossing Signs (R6-3, R6-3a)

Option:

The Divided Highway Crossing (R6-3 or R6-3a) sign (see Figure 2B-11) may be used to advise road users that they are approaching an intersection with a divided highway.

Standard:

When the Divided Highway Crossing sign is used at a four-legged intersection, the R6-3 sign shall be used. When used at a T-intersection, the R6-3a sign shall be used.

Option:

The Divided Highway Crossing sign may be located on the near right corner of the intersection and may be mounted beneath a STOP or YIELD sign or on a separate support.

Figure 2B-11. ONE WAY and Divided Highway Crossing Signs

R6-1 R6-2 R6-3 R6-3a

Section 2B.39 Parking, Standing, and Stopping Signs (R7 and R8 Series)

Support:

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 (see Figures 2B-16 and 2B-17) are as follows:

A. NO PARKING (BLANK) (R7-2-DE);
B. NO STOPPING, STANDING OR PARKING (R7-4-DE);
C. RESERVED PARKING for persons with disabilities (R7-8);
D. RESERVED PARKING (R7-8-DE);
E. HOUR PARKING (BLANK) (R7-108-DE)
F. MINUTE PARKING (BLANK) (R7-108-DE1); and
G. SNOW ROUTE (R7-203-DE).

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Figure 2B-12. Examples of Locations of ONE WAY Signs
(Sheet 1 of 2)

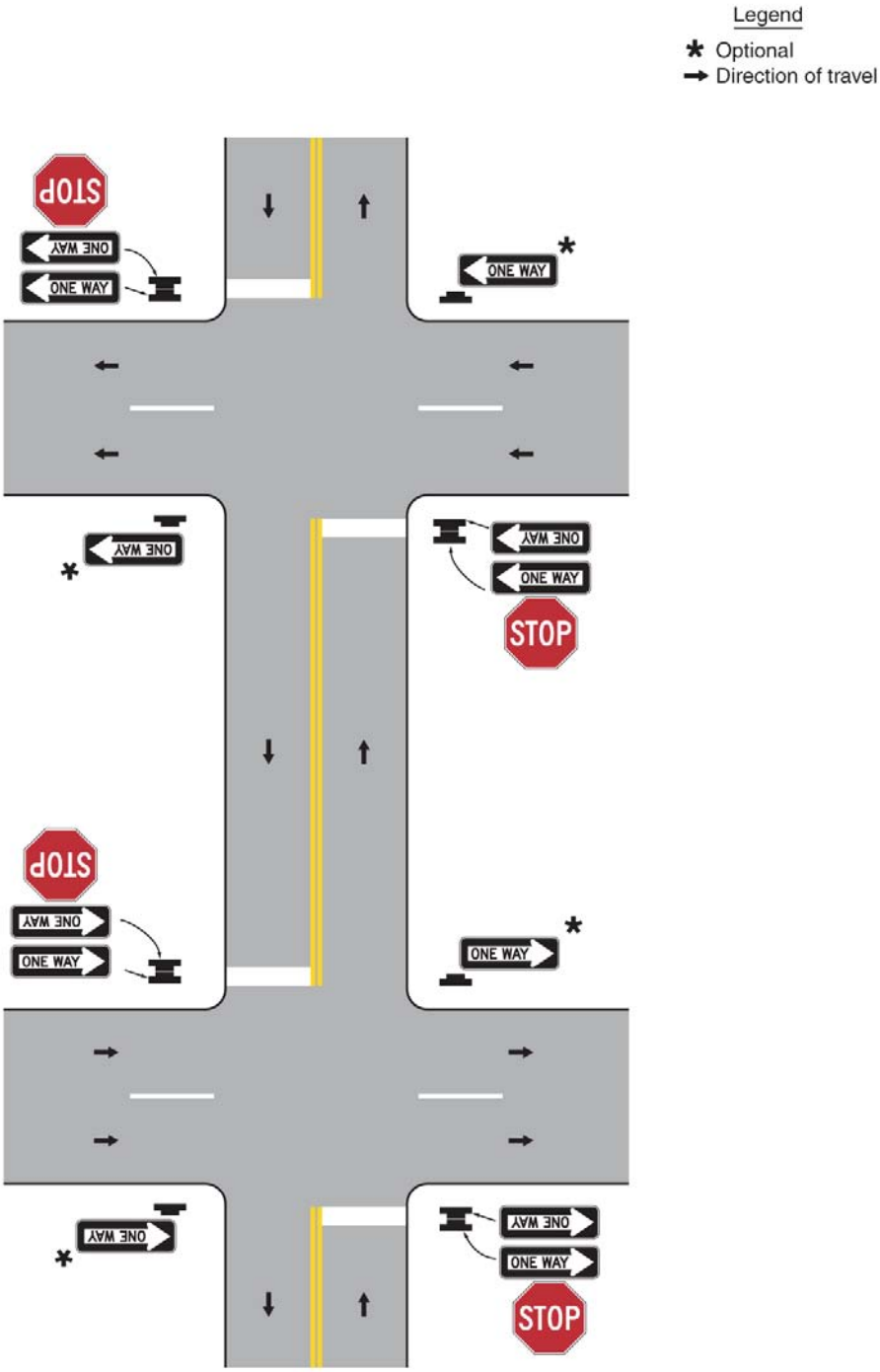


Figure 2B-12. Examples of Locations of ONE WAY Signs
(Sheet 2 of 2)

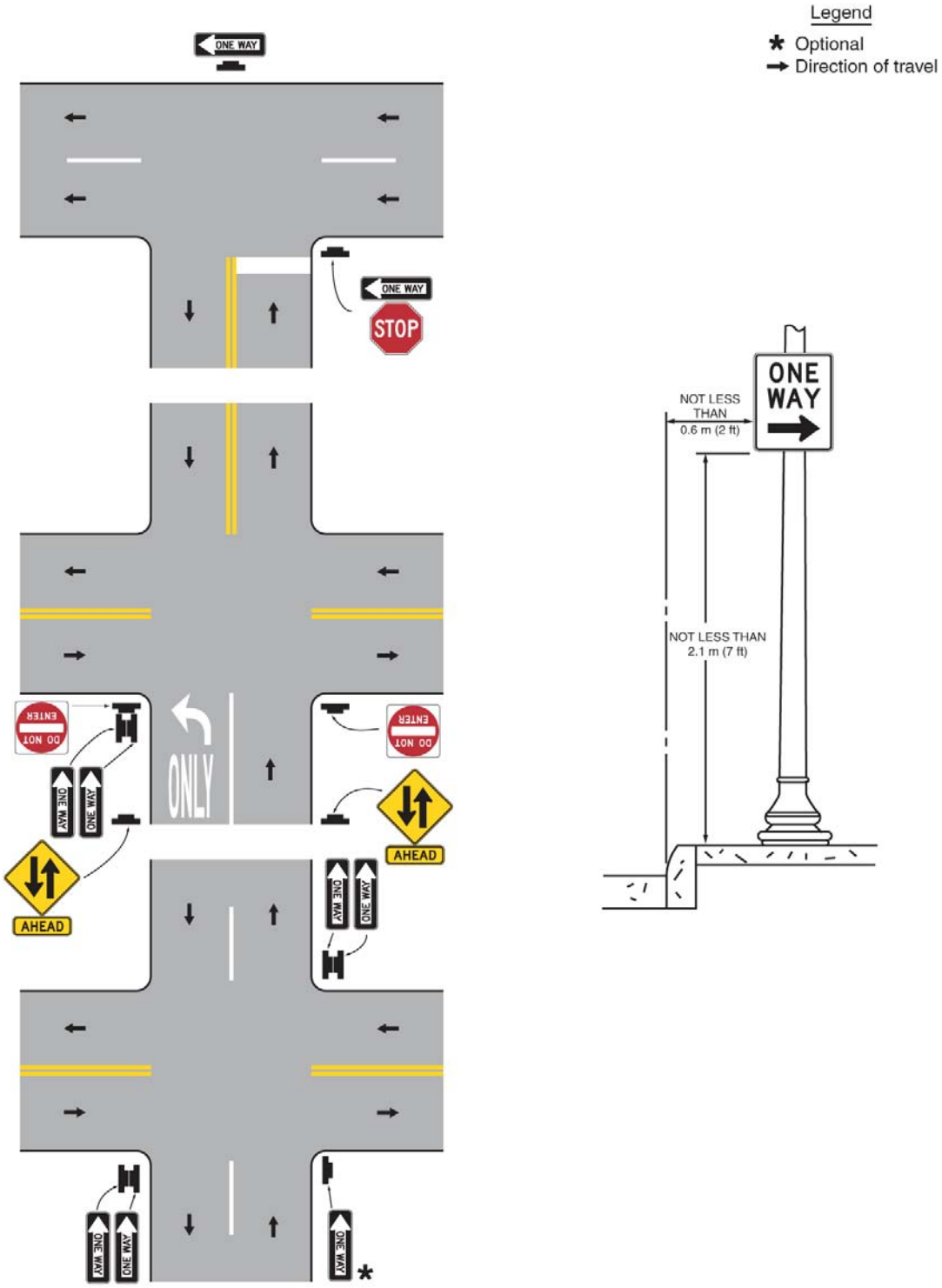
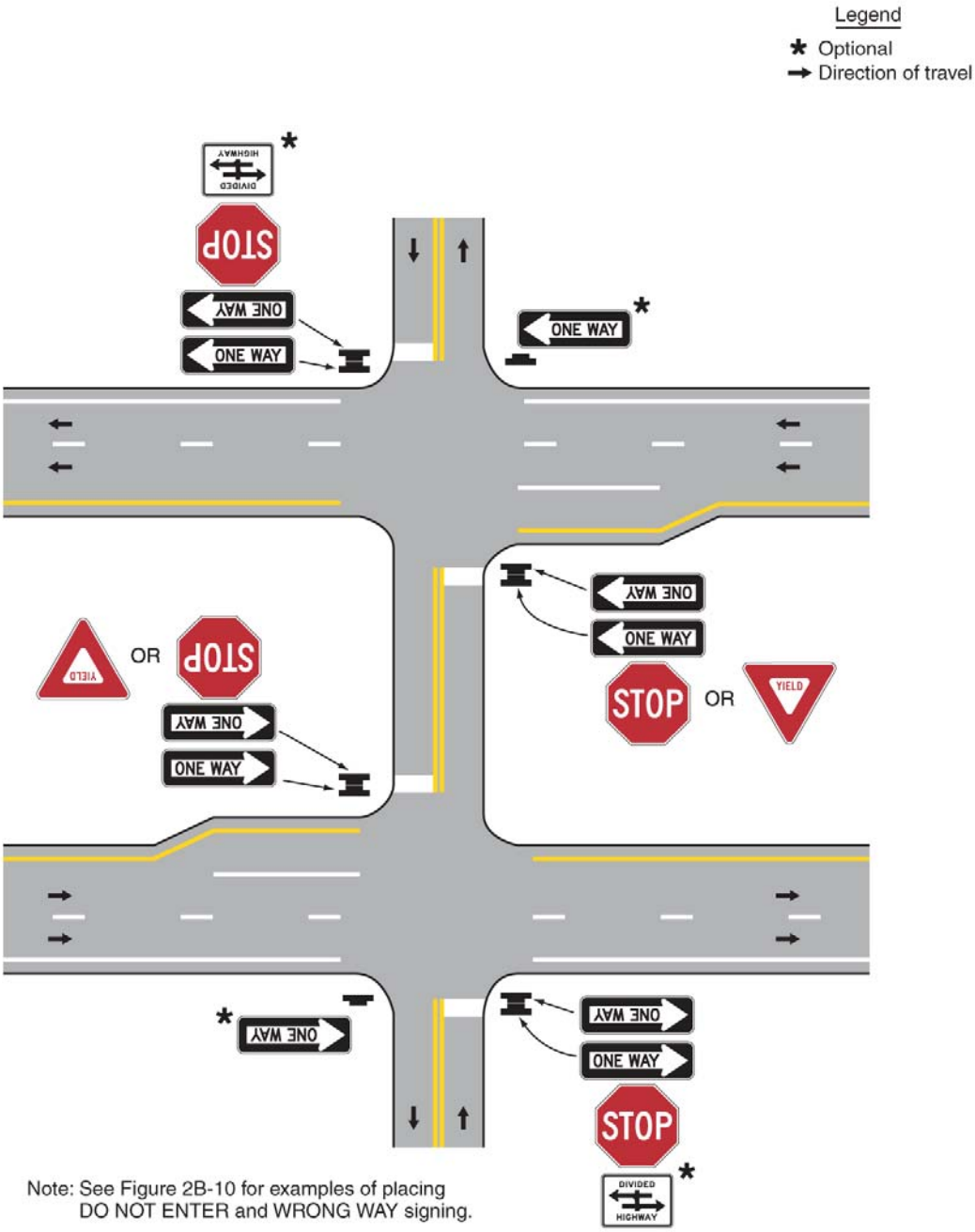
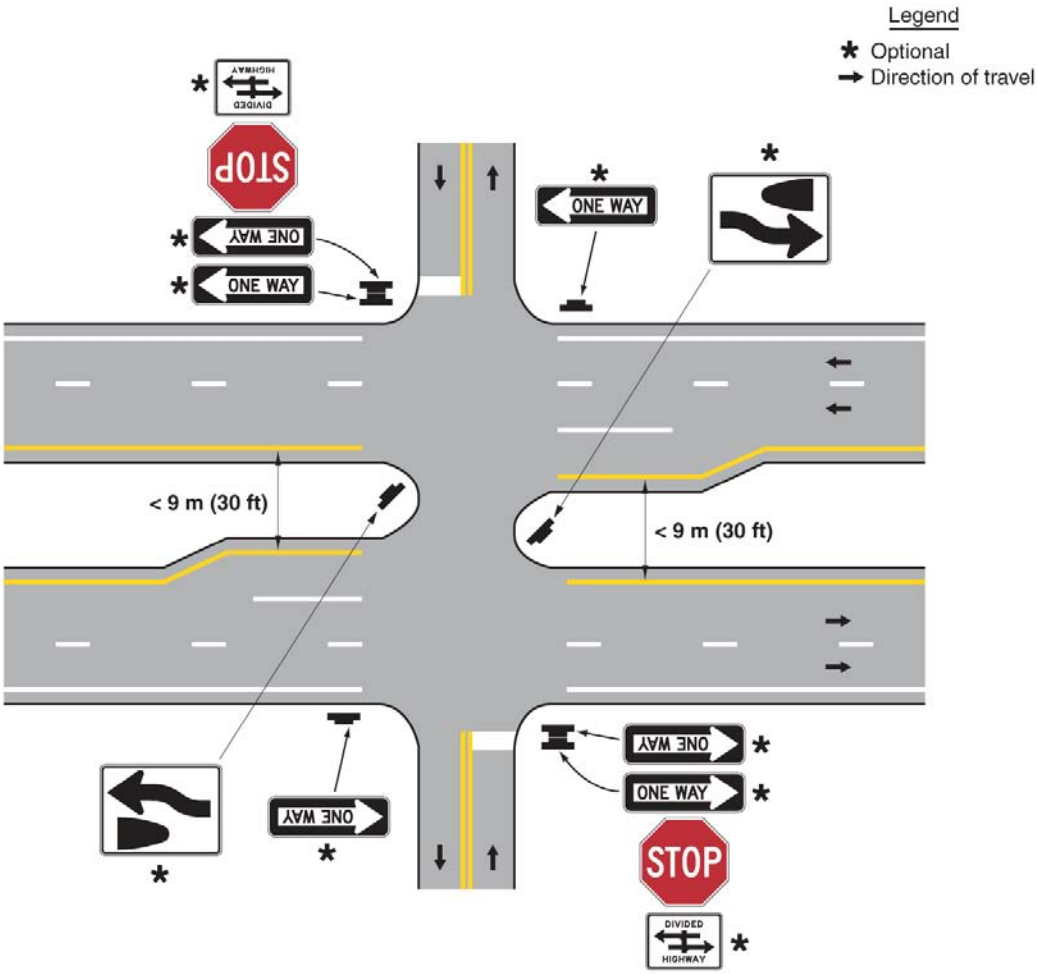


Figure 2B-13. Examples of ONE WAY Signing for Divided Highways with Medians of 9 m (30 ft) or Greater



Note: See Figure 2B-10 for examples of placing DO NOT ENTER and WRONG WAY signing.

Figure 2B-14. Examples of ONE WAY Signing for Divided Highways with Medians Less Than 9 m (30 ft)

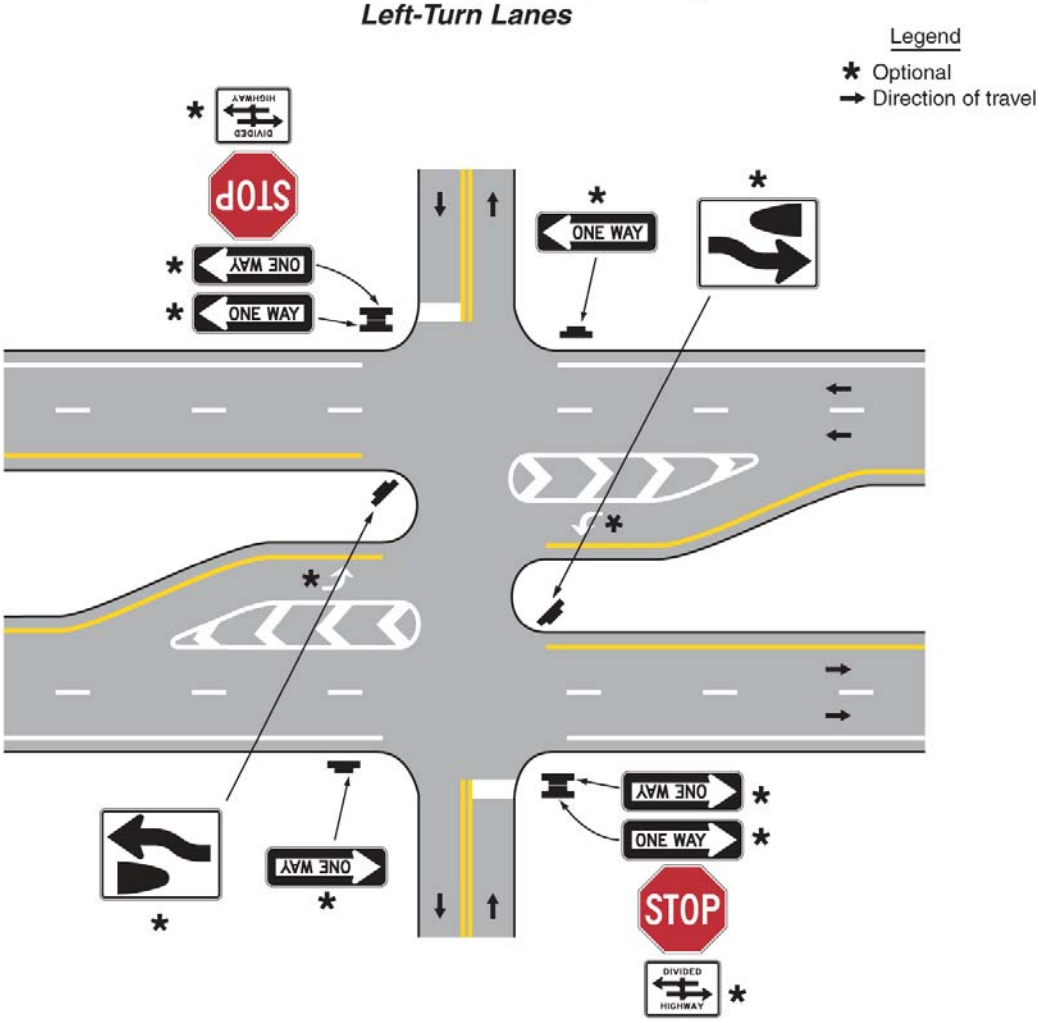


Notes:
All signs shown are optional except the STOP signs.

See Figure 2B-10 for examples of placing DO NOT ENTER and WRONG WAY signing.

Typical Mounting

Figure 2B-15. Examples of ONE WAY Signing for Divided Highways with Medians Less Than 9 m (30 ft) and Separated Left-Turn Lanes



Notes:

All signs shown are optional except the STOP signs.

See Figure 2B-10 for examples of placing DO NOT ENTER and WRONG WAY signing.

Typical Mounting

Section 2B.40 Design of Parking, Standing, and Stopping Signs

Support:

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

Standard:

The legend on parking signs shall state applicable regulations. Parking signs shall conform to the standards of shape, color, and location.

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). 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:

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.

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.

Where special parking restrictions are imposed during heavy snowfall, Snow Route (R7-203-DE) signs (see Figure 2B-16) should be installed. The legend will vary according to the regulations.

Option:

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To minimize the number of parking signs, blanket regulations that apply to a given district may, if legal, be posted at district boundary lines.

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.

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:

Two 300 x 450 mm (12 x 18 in) parking signs may be used with the red Parking Prohibition sign installed above or to the left of the green Permissive Parking sign.

At the transition point between two parking zones, a single sign or two signs mounted side by side may be used.

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To make the parking regulations more effective and to improve public relations by giving a definite warning, a sign may be appended to, or incorporated in, any parking prohibition sign. The Tow-Away Zone (R7-201a) symbol sign may be used and may have either a black or red legend and border on a white background.

Figure 2B-16. No Parking Signs (R7 Series)

Figure 2B-17. No Parking Signs (R8 Series)

Section 2B.41 <u>Placement of Parking, Stopping, and Standing Signs</u>

Guidance:

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 nor more than 45 degrees with the line of traffic flow in order to be visible to approaching traffic.

Spacing of signs should be based on legibility and sign orientation.

If the zone is unusually long, signs showing a double arrow should be used at intermediate points within the zone.

At intermediate points within a zone, a single sign without any arrow or appended plaque should be used, facing in the direction of approaching traffic. Otherwise the standards of placement should be the same as for signs using directional arrows. **DelDOT Rev.**

Section 2B.42 Emergency Restriction Signs (R8-4, R8-7)

Option:

The EMERGENCY PARKING ONLY (R8-4) sign (see Figure 2B-17) or the EMERGENCY STOPPING ONLY (R8-7) sign (see Figure 2B-17) may be used to discourage or prohibit shoulder parking, particularly where scenic or other attractions create a tendency for road users to stop temporarily, even though turnout or rest areas have not been provided.

Standard:

Emergency Restriction signs shall be rectangular and shall have a red or black legend and border on a white background.

Section 2B.43 No Hitchhiking Sign (R9-4a)

Option:

The No Hitchhiking (R9-4a) sign (see Figure 2B-18) may be used to prohibit standing in or adjacent to the roadway for the purpose of soliciting a ride.

DelDOT Rev.

Section 2B.44 No Pedestrian Crossing Sign (R9-3a)

Option:

No Pedestrian Crossing signs (see Figure 2B-18) may be used to limit pedestrian crossing to specific locations.

Standard:

If used, No Pedestrian Crossing signs shall be installed to face pedestrian approaches.

Option:

The No Pedestrian Crossing (R9-3a) sign may be used to prohibit pedestrians from crossing a roadway at an undesirable location or in front of a school or other public building where a crossing is not designated.

Support:

One of the most frequent uses of the No Pedestrian Crossing signs is at signalized intersections that have three crossings that can be used and one leg that cannot be crossed.

Figure 2B-18. Pedestrian Signs

Section 2B.45 <u>Traffic Signal Signs (R10-2a through R10-20a)</u>

Option:

To supplement traffic signal control, Traffic Signal signs R10-2a through R10-20a may be used to regulate road users. **DelDOT Rev.**

Guidance:

When used, Traffic Signal signs should be located adjacent to the signal face to which they apply.

Standard:

Traffic Signal signs applicable to pedestrian actuation (see Figure 2B-18) shall be mounted immediately above or incorporated in pedestrian pushbutton units (see Section 4E.08).

Support:

Traffic Signal signs applicable to pedestrians include:

A. CROSS ONLY ON (Walk Symbol) SIGNAL (R10-2a);
B. PUSH BUTTON FOR GREEN LIGHT (R10-3); and
C. PUSH BUTTON FOR (Walk Symbol and Arrow) (R10-4b).

Where symbol-type pedestrian signal indications are used, an educational sign (R10-3b) may be used to improve pedestrian understanding of pedestrian indications at signalized intersections. The R10-3d sign may be used if the pedestrian clearance time is sufficient only for the pedestrian to cross to the median. At intersections where pedestrians cross in two stages using a median refuge island, the word message "CROSS TO MEDIAN" may be placed on the near corner of the refuge island along with the educational plaque. **DelDOT Rev.**

Traffic Signal signs (see Figure 2B-19) may be installed at certain locations to clarify signal control. Among the legends for this purpose are LEFT ON GREEN ARROW ONLY (R10-5), STOP HERE ON RED (R10-6 or R10-6a) for observance of stop lines, DO NOT BLOCK INTERSECTION (R10-7) and

DO NOT BLOCK DRIVEWAY (R10-7-DE) for avoidance of traffic obstructions, and LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) (see Section 4D.06).

Standard:

The symbolic NO TURN ON RED (BALL) (R10-11) or the NO TURN ON RED (Arrow) (R10-11-DE) sign (see Figure 2B-19) shall be used to prohibit a right turn on red (or a left turn on red from a one-way street to a one-way street). **DelDOT Rev.**

Guidance:

If used, the NO TURN ON RED sign should be installed near the appropriate signal head.

A NO TURN ON RED sign should be considered when an engineering study finds that one or more of the following conditions exists:

A. Inadequate sight distance to vehicles approaching from the left (or right, if applicable);
B. Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;
C. An exclusive pedestrian phase;
D. An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities; and
E. More than three right-turn-on-red accidents reported in a 12-month period for the particular approach.

Where turns on red are permitted during a flashing red signal indication, the TURN ON FLASHING RED WITH CAUTION AFTER STOP (R10-17-DE) sign (see Figure 2B-19) should be installed adjacent to the flashing RED signal indication. **DelDOT Rev.**

Where turns on red are permitted and the signal indication is a RED ARROW, the RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign (see Figure 2B-19) should be installed adjacent to the RED ARROW signal indication.

Option:

In order to remind drivers who are making turns to yield to pedestrians, especially at intersections where right turn on red is permitted and pedestrian crosswalks are marked, a TURNING TRAFFIC MUST YIELD TO PEDESTRIANS (R10-15) sign may be used (see Figure 2B-19).

A supplemental R10-20a plaque (see Figure 2B-19) showing times of day 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. Time of day restrictions may only be used when approved by the Chief Traffic Engineer or a designee. **DelDOT Rev.**

Standard:

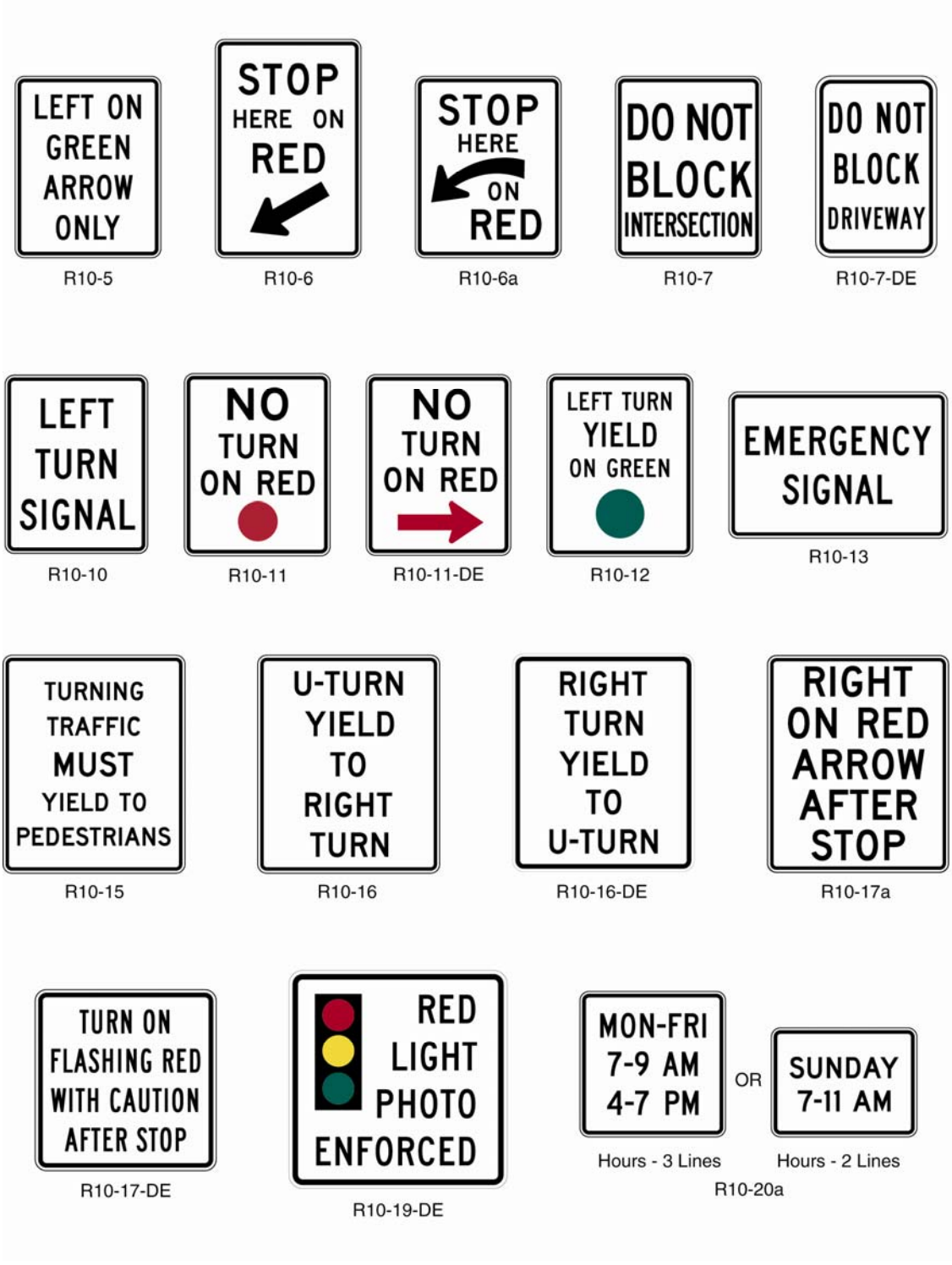
The EMERGENCY SIGNAL (R10-13) sign (see Figure 2B-19) shall be used in conjunction with emergency-vehicle traffic control signals (see Section 4F.02).

Option:

A U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Figure 2B-19) may be installed if U-turns are allowed on a protected left-turn movement on an approach from which drivers making a right turn from the conflicting approach to their left are simultaneously being shown a right-turn GREEN ARROW signal indication.

A RIGHT TURN YIELD TO U-TURN (R10-16-DE) sign (see Figure 2B-19) may be installed if right-turns are allowed on a protected right-turn movement on an approach from which drivers making a u-turn from the conflicting approach to their right are simultaneously being shown a left-turn GREEN ARROW signal indication. **DelDOT Rev.**

Figure 2B-19. Traffic Signal Signs



DelDOT Revision

Section 2B.46 RED LIGHT PHOTO ENFORCED (R10-19-DE)

Standard:

A RED LIGHT PHOTO ENFORCED (R10-19-DE) sign (see Figure 2B-19) shall be installed to advise road users that the traffic regulation is being enforced by photographic equipment. The sign shall be mounted at a distance from the Stop line no less than the dilemma zone distance for the posted speed limit. If a Signal Ahead (W3-3) sign is posted on the approach within the dilemma zone, that sign shall be relocated prior to the RED LIGHT PHOTO ENFORCED (R10-19-DE) sign. At a minimum, one RED LIGHT PHOTO ENFORCED (R10-19-DE) sign shall be placed on the right side of the road. **DelDOT Rev.**

Option:

For median divided roadways with a photo-enforced approach having more than one through lane, a second RED LIGHT PHOTO ENFORCED (R10-19-DE) sign may be placed in the median.

Section 2B.47 KEEP OFF MEDIAN Sign (R11-1) (NOT APPLICABLE IN DELAWARE) **DelDOT Rev.**

Section 2B.48 ROAD CLOSED Sign (R11-2) and LOCAL TRAFFIC ONLY Signs (R11-3 Series, R11-4)

Guidance:

The ROAD CLOSED (R11-2) sign should be installed where roads have been closed to all traffic (except authorized vehicles).

ROAD CLOSED—CLOSED X MILES AHEAD—LOCAL TRAFFIC ONLY (R11-3); or ROAD CLOSED TO THRU TRAFFIC (R11-4) signs should be used where through traffic is not permitted, or for a closure some distance beyond the sign, but where the highway is open for local traffic up to the point of closure.

Standard:

The Road Closed (R11-2, R11-3 series, and R11-4) signs (see Figure 2B-20) shall be designed as horizontal rectangles. These signs shall be preceded by the applicable Advance Road Closed warning sign with the secondary legend AHEAD and, if applicable, an Advance Detour warning sign (see Section 6F.18).

Option:

The word message BRIDGE may be substituted for the ROAD message where applicable.

Section 2B.49 Weight Limit Signs (R12-1 through R12-5-DE)

Guidance:

The DelDOT Bridge Division will create a resolution for the weight limit restrictions to be posted when an engineering study indicates the need to restrict designated trucks on a bridge in Delaware.

Option:

The Weight Limit (R12-1) sign (see Figure 2B-20) carrying the legend WEIGHT LIMIT X TONS may be used to indicate a vehicle weight restriction (loaded weight) when only one limit is in effect. **DelDOT Rev.**

Posting of specific load limits may be accomplished by the use of the Weight Limit symbol (R12-5-DE) sign (see Figure 2B-20). A sign containing the legend WEIGHT LIMIT on the top two lines, and showing up to four different truck symbols and their respective weight limits for which restrictions apply may be used, with the weight limits shown to the right of each symbol as XX T.

The NO TRUCKS OVER 2 AXLES EXCEPT LOCAL SERVICES (R12-3-DE) sign (see Figure 2B-20) may be used to restrict trucks of certain sizes by reference to empty weight in residential districts.

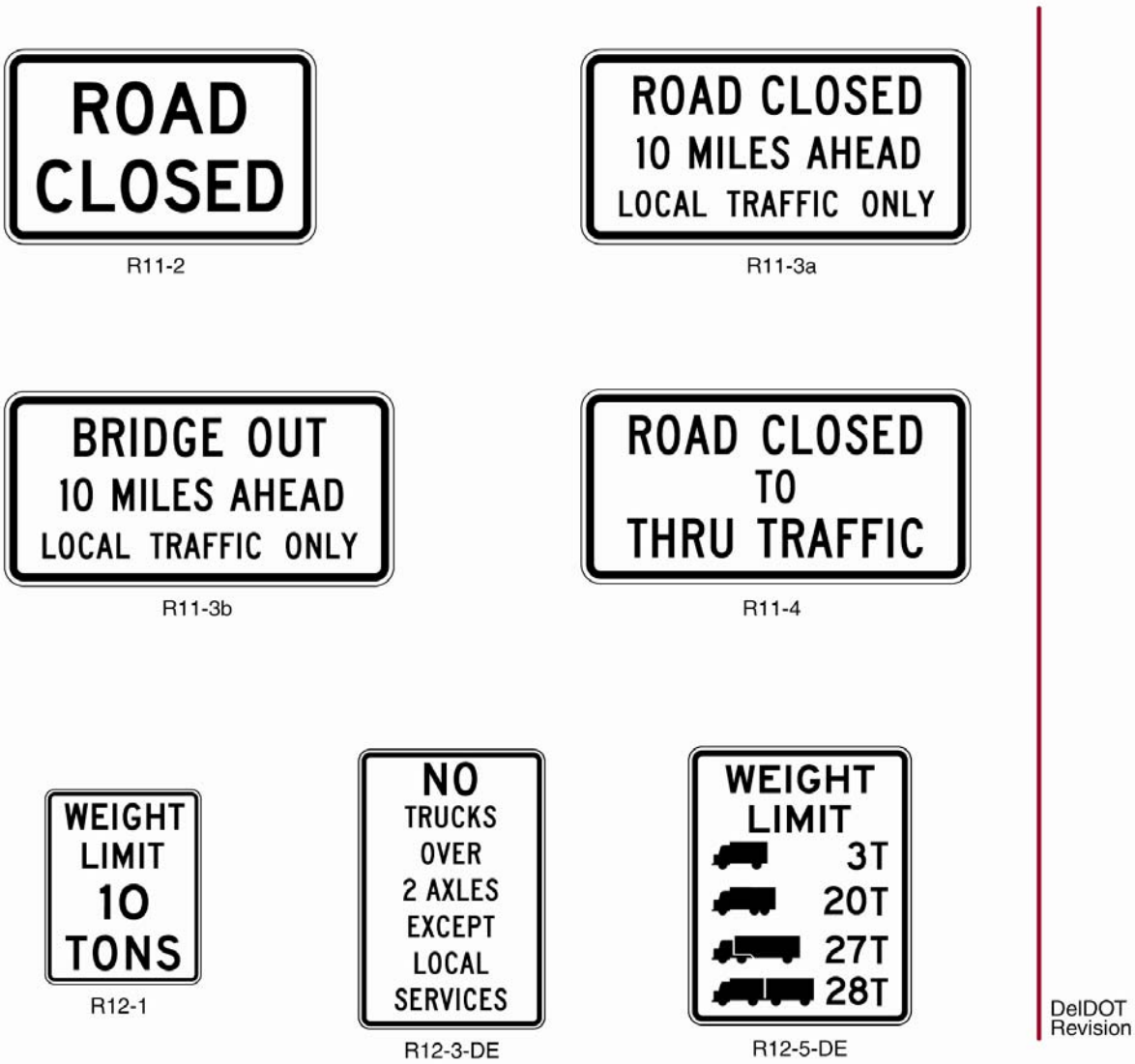
Standard:

If used, the Weight Limit sign (see Figure 2B-20) shall be located in advance of the applicable section of highway or structure.

Guidance:

The Weight Limit (R12-1) sign with an advisory distance ahead legend should be placed at approach to road intersections or other points where prohibited vehicles can detour or turn around.

Figure 2B-20. Road Closed and Weight Limit Signs



Section 2B.50 Weigh Station Signs (R13 Series)

Guidance:

Weigh Station signs may be used if approved by DelDOT's Chief Traffic Engineer or a designee. See Section 2D.44 for additional guidance.

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Section 2B.51 TRUCK ROUTE Sign (R14-1)

Guidance:

The TRUCK ROUTE (R14-1) sign (see Figure 2B-21) should be used to mark a route that has been designated to allow truck traffic.

Option:

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

Figure 2B-21. Truck Signs

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Section 2B.52 Hazardous Material Signs (R14-2, R14-3) (NOT APPLICABLE IN DELAWARE)

Section 2B.53 National Network Signs (R14-4, R14-5) (NOT APPLICABLE IN DELAWARE)

Section 2B.54 Other Regulatory Signs (R16-1, SR1-1-DE, SR1-11-DE, SR1-12-DE, SR1-13-DE, SR1-14-DE, SR1-15-DE, SR1-18-DE)

Option:

Regulatory word message signs other than those classified and specified in this Manual and "Standard Highway Signs" may be developed to aid the enforcement of other laws or regulations. Examples of state regulatory message signs commonly used in Delaware are shown in Figure 2B-22 and discussed in this section. Sign numbers SR1-2-DE through SR1-10-DE have been reserved for future traffic-oriented state regulatory signs. **DelDOT Rev.**

Except for symbols on regulatory signs, minor modifications in the design may be permitted provided that the essential appearance characteristics are met.

Guidance:

The SIGNAL PERMIT PLATE (SR1-1-DE) sign (see Figure 2B-22) should be used to identify intersections for DelDOT inventory.

Option:

The following signs may be used to aid in the enforcement of activities prohibited by health code ordinances or regulations (see Figure 2B-22):

NO DUMPING UP TO $500 FINE (SR1-11-DE); No Littering (SR1-12-DE); Dog Waste (SR1-13-DE); NO FISHING, CRABBING OR SWIMMING BETWEEN SIGNS (SR1-14-DE) and STATE PROPERTY NO TRESPASSING (SR1-15-DE).

Standard:

When a seat belt restriction is posted on a stand-alone sign, the Seat Belt symbol sign (R16-1) (see Figure 2B-22) shall be used.

Guidance:

The seat belt symbol should not be used alone, but may be used in connection with mandatory seat belt regulatory messages on a sign panel.

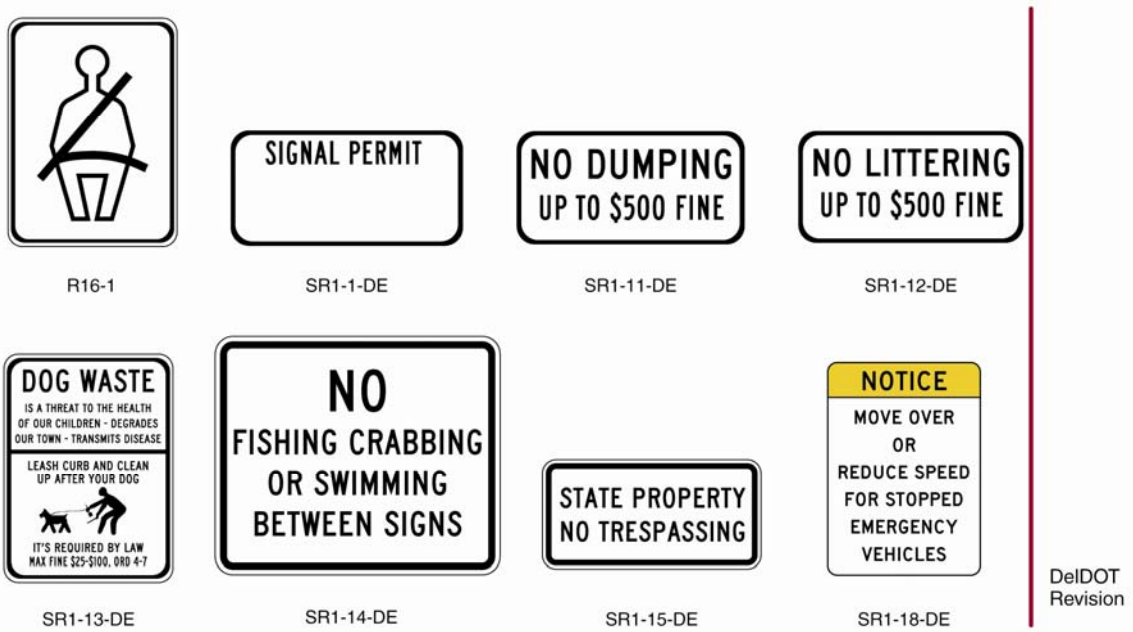
Option:

The NOTICE MOVE OVER OR REDUCE SPEED FOR STOPPED EMERGENCY VEHICLES (SR1-18-DE) sign (see Figure 2B-22) may be installed at municipal boundaries to enforce the "Move Over" law.

Standard:

The NOTICE MOVE OVER OR REDUCE SPEED FOR STOPPED EMERGENCY VEHICLES (SR1-18-DE) shall be installed only where adequate spacing between other higher priority signs is available.

Figure 2B-22. Other Regulatory Signs



DelDOT Revision

CHAPTER 2C. WARNING SIGNS

Section 2C.01 Function of Warning Signs

Support:

Warning signs call attention to unexpected conditions on or adjacent to a highway or street and to situations that might not be readily apparent to road users. Warning signs alert road users to conditions that might call for a reduction of speed or an action in the interest of safety and efficient traffic operations.

Section 2C.02 Application of Warning Signs

Standard:

The use of warning signs shall be based on an engineering study or on engineering judgment.

Guidance:

The use of warning signs should be kept to a minimum as the unnecessary use of warning signs tends to breed disrespect for all signs. In situations where the condition or activity is seasonal or temporary, the warning sign should be removed or covered when the condition or activity does not exist.

Support:

The categories of warning signs are shown in Table 2C-1.

Warning signs specified herein cover most of the conditions that are likely to be encountered. Additional warning signs for low-volume roads (as defined in Section 5A.01), temporary traffic control zones, school areas, highway-rail grade crossings, bicycle facilities, and highway-light rail transit grade crossings are discussed in Parts 5 through 10, respectively.

Option:

Word message warning signs other than those specified in the MUTCD may be developed and installed by DelDOT.

Section 2C.03 Design of Warning Signs

Standard:

All warning signs shall be diamond-shaped (square with one diagonal vertical) with a black legend and border on a yellow background unless specifically designated otherwise. Warning signs shall be designed in accordance with the sizes, shapes, colors, and legends contained in the "DelDOT Standard Signs."

Guidance:

Warning signs that are mounted overhead should have a black legend and border on a fluorescent yellow background.

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Option:

Warning signs regarding conditions associated with pedestrians, bicyclists, playgrounds, school buses, and schools may have a black legend and border on a yellow background or a black legend and border on a fluorescent yellow-green background.

Where additional emphasis is needed, warning signs may have a black legend and border on a yellow background or a black legend and border on a fluorescent yellow background.

Section 2C.04 Size of Warning Signs

Standard:

The sizes for warning signs shall be as shown in Table 2C-2. The Minimum and Oversized sized signs shall only be used if approved by DelDOT's Chief Traffic Engineer or a designee.

Guidance:

The Conventional Road size should be used on conventional roads.

The Freeway and Expressway sizes should be used for higher-speed applications to provide larger signs for increased visibility and recognition.

Option:

The Minimum size may be used on low-speed roadways where the reduced legend size would be adequate for the warning or where physical conditions preclude the use of the other sizes.

Oversized signs and larger sizes may be used for those special applications where speed, volume, or other factors result in conditions where increased emphasis, improved recognition, or increased legibility would be desirable.

Standard:

The minimum size for supplemental warning plaques shall be as shown in Table 2C-3.

Option:

Signs larger than those shown in Tables 2C-2 and 2C-3 may be used (see Section 2A.12) if approved by DelDOT's Chief Traffic Engineer or a designee. **DelDOT Rev.**

Section 2C.05 Placement of Warning Signs

Support:

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

The total time needed to perceive and complete a reaction to a sign is the sum of the times necessary for Perception, Identification (understanding), Emotion (decision making), and Volition (execution of decision), and is called the PIEV time. The PIEV time can vary from several seconds for general warning signs to 6 seconds or more for warning signs requiring high road user judgment.

Table 2C-4 lists suggested sign placement distances for two conditions. This table is provided as an aid for determining warning sign location.

Guidance:

Warning signs should be placed so that they provide adequate PIEV time. 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.

Minimum spacing between warning signs with different messages should be based on the estimated PIEV time for driver comprehension of and reaction to the second sign. The minimum spacing contained in Table 2C-4a is for guidance purposes and should be applied with engineering judgment. **DelDOT Rev.**

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

Option:

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.

Table 2C-1. Categories of Warning Signs (Sheet 1 of 2)

DelDOT Rev.

Category	Group	Section	Signs	MUTCD Codes
Roadway Related	Changes in Horizontal Alignment	2C.06	Turn, Curve, Reverse Turn, Reverse Curve, Winding Road, Hairpin Curve	W1-1R, W1-1L, W1-2R, W1-2L, W1-3R, W1-3L, W1-4R, W1-4L, W1-5R, W1-5L, W1-11
		2C.08	Combination Horizontal Alignment/Intersection	W1-10R, W1-10L
		2C.09	One Direction Large Arrow	W1-6R, W1-6L
		2C.10	Chevron Alignment	W1-8
		2C.11	Truck Rollover	W1-13
	Vertical Alignment	2C.12	Hill	W7-1, W7-1a-DE
	Cross Section	2C.15	Road Narrows	W5-1
		2C.16-17	Narrow Bridge, One Lane Bridge	W5-2, W5-3
		2C.18-20	Divided Highway, Divided Highway Ends, Double Arrow	W6-1, W6-1p-DE, W6-2, W6-2p-DE, W12-1
		2C.21	Dead End, No Outlet	W14-1, W14-2, W14-2aR, W14-2aL
		2C.22	Low Clearance	W12-2, W12-2p, W12-2p-DE
	Roadway Surface Condition	2C.23-24	Bump, Dip, Speed Hump	W8-1, W8-2, W17-1
		2C.26	Soft Shoulder, Rough Road, Low Shoulder, Uneven Lanes	W8-4, W8-8, W8-9, W8-11
		2C.27	Slippery When Wet, Water on the Road	W8-5, W21-7-DE
		2C.28	Bridge Ices Before Road, Bridges Ice Before Highways	W8-13, W8-13-DE
Traffic Related	Advance Traffic Control	2C.29-30	Stop Ahead, Yield Ahead, Signal Ahead, Red Signal Ahead When Flashing, Speed Reduction, New, New Traffic Pattern, Bridge Closed	W3-1, W3-2, W3-3, W3-3-DE, W3-5, W3-7a-DE, W3-8a-DE, W11-12-DE
	Traffic Flow	2C.31-34	Merge, Lane Ends (symbol), Added Lane, Entering Roadway Merge, Entering Roadway Added Lane, Two-Way Traffic, Right (Left) Lane Ends, Right (Left) Lane Ends ½ Mile, Lane Ends Merge Right (Left), Lane Ends (arrows), Ahead	W4-1R, W4-1L, W4-1p-DE, W4-2R, W4-2L, W4-3R, W4-3L, W4-5, W4-6, W6-3, W6-3p-DE, W9-1R, W9-1L, W9-1R-DE, W9-1L-DE, W9-2R, W9-2L, W9-2R-DE, W9-2L-DE, W16-9p
	Change in Speed	2C.36	Advisory Exit and Ramp Speed	W13-2, W13-3
	Intersections	2C.37	Cross Road, Side Road, T, Y, and Circular Intersection, Traffic Circle, Watch For Turning Traffic, Watch for Entering Traffic	W2-1, W2-2R, W2-2L, W2-3R, W2-3L, W2-4, W2-5, W2-6, W16-12p, W21-9-DE, W21-9p-DE, W21-10-DE
		2C.38	Two Directions Large Arrow	W1-7
		2C.39	Oncoming Extended Green	W25-1, W25-2
	Vehicular Traffic	2C.40	Truck Crossing, Bicycle, Bicycle Crossing, Farm Machinery, Emergency Vehicle, EMERGENCY VEHICLE, Truck (symbol), Golf Cart, Emergency Signal Ahead, Fire Signal, Horse and Buggy, Hidden Intersection, Truck Entrance, Hidden Entrance, Plant Entrance	W8-6, W11-1, W11-1p-DE, W11-5, W11-8, W11-8-DE, W11-10, W11-11, W11-12p, W11-12p-DE, W11-14, W11-16-DE, W11-22-DE, W11-24a-DE, W11-25-DE
	Nonvehicular	2C.41-42	Pedestrian, Deer, Cattle, Equestrian, Horse, Handicapped, Duck, Low Flying Aircraft, Playground, Watch Children, Deaf Child, Blind Child	W11-2, W11-3, W11-4, W11-7, W11-7-DE, W11-9, W11-11-DE, W11-23-DE, W15-1, W21-11-DE, W21-11p-DE, W21-14-DE, W21-15-DE

Table 2C-1. Categories of Warning Signs (Sheet 2 of 2)

DelDOT Rev.

Category	Group	Section	Signs	MUTCD Codes
Supplemental Plaques	Distance	2C.45, 48	XX Feet, XX Miles, Next XX Feet, Next XX Miles	W16-2, W16-3, W16-4, W7-3a
	Speed	2C.46	Advisory Speed	W13-1
	Arrow	2C.47	Diagonal Arrow	W16-7pR, W16-7pL
	Street Name Plaque	2C.49	Advance Street Name	W16-8, W16-8a-DE
	Intersection	2C.50	Cross Traffic Does Not Stop	W4-4p
	Share The Road	2C.51	Share The Road	W16-1
	Traffic Circle	2C.37	Traffic Circle	W16-12p
	Other	2C.53-DE	Supplemental Warning, All Traffic, Toll, Strictly Enforced,	W3-9-DE, W6-3p-DE1, W16-11-DE, W21-12p-DE

Table 2C-2. Warning Sign Sizes

DelDOT Rev.

Description		Conventional Road	Expressway	Freeway	Minimum	Oversized
Shape	Sign Series					
Diamond	W1, W2, W7, W8, W9, W11, W12-1, W14, W15-1, W17-1, W21-7-DE, 11-DE, 14-DE, 15-DE	750 x 750 (30 x 30)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	-	1200 x 1200 (48 x 48)
	W1 Combination, W3, W4, W5, W6, W12, W21-9-DE, 10-DE	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	1200 x 1200 (48 x 48)	750 x 750 (30 x 30)	1200 x 1200 (48 x 48)
Rectangular	W1 – Arrows	1200 x 600 (48 x 24)	-	-	-	1500 x 750 (60 x 30)
	W1 – Chevron	450 x 600 (18 x 24)	750 x 900 (30 x 36)	900 x 1200 (36 x 48)	-	-
	W3-3-DE	1500 x 1200 (60 x 48)	1800 x 1200 (72 x 48)	-	-	1800 x 1200 (72 x 48)
	W12-2p	2100 x 600 (84 x 24)	2100 x 600 (84 x 24)	2100 x 600 (84 x 24)	-	-
	W13-2, 3	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	900 x 1200 (36 x 48)	-	-
	W25	600 x 750 (24 x 30)	-	-	-	-
	W9-1-DE	24000 x 1200 (96 x 48)	24000 x 1200 (96 x 48)	24000 x 1200 (96 x 48)	-	-
	W11-12p-DE	1500 x 1200 (60 x 48)	1800 x 1200 (72 x 48)	-	-	-
	W16-1	450 x 600 (18 x 24)	600 x 750 (24 x 30)	-	-	-
	W8-13-DE	600 x 750 (24 x 30)	-	-	-	-
	W13-1	450 x 450 (18 x 18)	600 x 600 (24 x 24)	600 x 600 (24 x 24)	-	-
Circular	W10-1	900 (36) Dia.	1200 (48) Dia.	-	-	1200 (48) Dia.

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

Table 2C-3. Minimum Size of Supplemental Warning Plaques

Size of Warning Signs	Size of Supplemental Plaque			
	Rectangular			Square
	1 Line	2 Lines	Arrow	
600 x 600 (24 x 24) 750 x 750 (30 x 30)	600 x 300 (24 x 12)	600 x 450 (24 x 18)	600 x 300 (24 x 12)	450 x 450 (18 x 18)
900 x 900 (36 x 36) 1200 x 1200 (48 x 48)	750 x 450 (30 x 18)	750 x 600 (30 x 24)	750 x 450 (30 x 18)	600 x 600 (24 x 24)

Notes: 1. Larger supplemental plaques may be used when appropriate.
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.

Section 2C.06 <u>Horizontal Alignment Signs (W1-1 through W1-5, W1-11)</u> **DelDOT Rev.**

Option:

The horizontal alignment Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), or Winding Road (W1-5) signs (see Figure 2C-1) may be used in advance of situations where the horizontal roadway alignment changes. A One-Direction Large Arrow (W1-6) sign (see Figure 2C-1 and Section 2C.09) may be used on the outside of the turn or curve.

If the change in horizontal alignment is 135 degrees or more, the Hairpin Curve (W1-11) sign (see Figure 2C-1) may be used.

Guidance: **DelDOT Rev.**

The application of these signs should conform to Table 2C-5.

When the Hairpin Curve sign is installed, either a One-Direction Large Arrow (W1-6) sign or Chevron Alignment (W1-8) signs should be installed on the outside of the turn or curve.

Option:

An Advisory Speed (W13-1) plaque (see Section 2C.46) may be used to indicate the speed for the change in horizontal alignment. The supplemental distance plaque NEXT XX km (NEXT XX MILES) (W7-3a) may be installed below the Winding Road sign where continuous roadway curves exist (see Section 2C.45). The combination Horizontal Alignment/Advisory Speed sign (see Section 2C.07), combination Horizontal Alignment/Intersection sign (see Section 2C.08), or the Curve Speed sign (see Section 2C.36) may also be used.

Standard:

When engineering judgment determines the need for a horizontal alignment sign, one of the W1-1 through W1-5, W1-10, or W1-11 signs shall be used. **DelDOT Rev.**

Option:

If the reduction in speed is 20 km/h (15 mph) or greater, a supplemental combination Horizontal Alignment/Advisory Speed sign or Curve Speed (W13-5) sign may be installed as near as practical to the point of curvature. If the reduction in speed is 40 km/h (25 mph) or greater, one or more additional Curve Speed signs may be installed along the curve.

Table 2C-4. Guidelines for Advance Placement of Warning Signs
(Metric Units)

Posted or 85th-Percentile Speed (km/h)	Advance Placement Distance [1]												
	Condition A: Speed Reduction and Lane Changing in Heavy Traffic [2]	Condition B: Deceleration to the listed advisory speed (km/h) for the condition [4]											
		0 [3]	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**
30	60 m	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-	-	-	-	-
40	100 m	N/A [5]	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-	-	-	-
50	150 m	N/A [5]	N/A [5]	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-	-	-
60	180 m	30 m	N/A [5]	N/A [5]	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-	-
70	220 m	50 m	40 m	30 m	N/A [5]	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-
80	260 m	80 m	60 m	55 m	50 m	40 m	30 m	N/A [5]	N/A [5]	-	-	-	-
90	310 m	110 m	90 m	80 m	70 m	60 m	40 m	N/A [5]	N/A [5]	N/A [5]	-	-	-
100	350 m	130 m	120 m	115 m	110 m	100 m	90 m	70 m	60 m	40	N/A [5]	-	-
110	380 m	170 m	160 m	150 m	140 m	130 m	120 m	110 m	90 m	70 m	50 m	N/A [5]	-
120	420 m	200 m	190 m	185 m	180 m	170 m	160 m	140 m	130 m	110 m	90 m	60 m	40 m
130	460 m	230 m	230 m	230 m	220 m	210 m	200 m	180 m	170 m	150 m	120 m	100 m	70 m

Notes:

1. The distances are adjusted for a sign legibility distance of 50 m for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 75 m, which is appropriate for an alignment warning symbol sign.
2. Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PIEV time of 14.0 to 14.5 seconds for vehicle maneuvers (2001 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 50 m for the appropriate sign.
3. Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2001 AASHTO Policy, Stopping Sight Distance, Exhibit 3-1, providing a PIEV time of 2.5 seconds, a deceleration rate of 3.4 m/second^2, minus the sign legibility distance of 50 m.
4. Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PIEV time, a vehicle deceleration rate of 3 m/second^2, minus the sign legibility distance of 75 m.
5. No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing to provide adequate advance warning for the driver.

Table 2C-4. Guidelines for Advance Placement of Warning Signs
(English Units)

Posted or 85th-Percentile Speed	Advance Placement Distance [1]								
	Condition A: Speed Reduction and Lane Changing in Heavy Traffic [2]	Condition B: Deceleration to the listed advisory speed (mph) for the condition [4]							
		0 [3]	**10**	**20**	**30**	**40**	**50**	**60**	**70**
20 mph	225 ft	N/A [5]	N/A [5]	-	-	-	-	-	-
25 mph	325 ft	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-
30 mph	450 ft	N/A [5]	N/A [5]	N/A [5]	-	-	-	-	-
35 mph	550 ft	N/A [5]	N/A [5]	N/A [5]	N/A [5]	-	-	-	-
40 mph	650 ft	125 ft	N/A [5]	N/A [5]	N/A [5]	-	-	-	-
45 mph	750 ft	175 ft	125 ft	N/A [5]	N/A [5]	N/A [5]	-	-	-
50 mph	850 ft	250 ft	200 ft	150 ft	100 ft	N/A [5]	-	-	-
55 mph	950 ft	325 ft	275 ft	225 ft	175 ft	100 ft	N/A [5]	-	-
60 mph	1100 ft	400 ft	350 ft	300 ft	250 ft	175 ft	N/A [5]	-	-
65 mph	1200 ft	475 ft	425 ft	400 ft	350 ft	275 ft	175 ft	N/A [5]	-
70 mph	1250 ft	550 ft	525 ft	500 ft	425 ft	350 ft	250 ft	150 ft	-
75 mph	1350 ft	650 ft	625 ft	600 ft	525 ft	450 ft	350 ft	250 ft	100 ft

Notes:

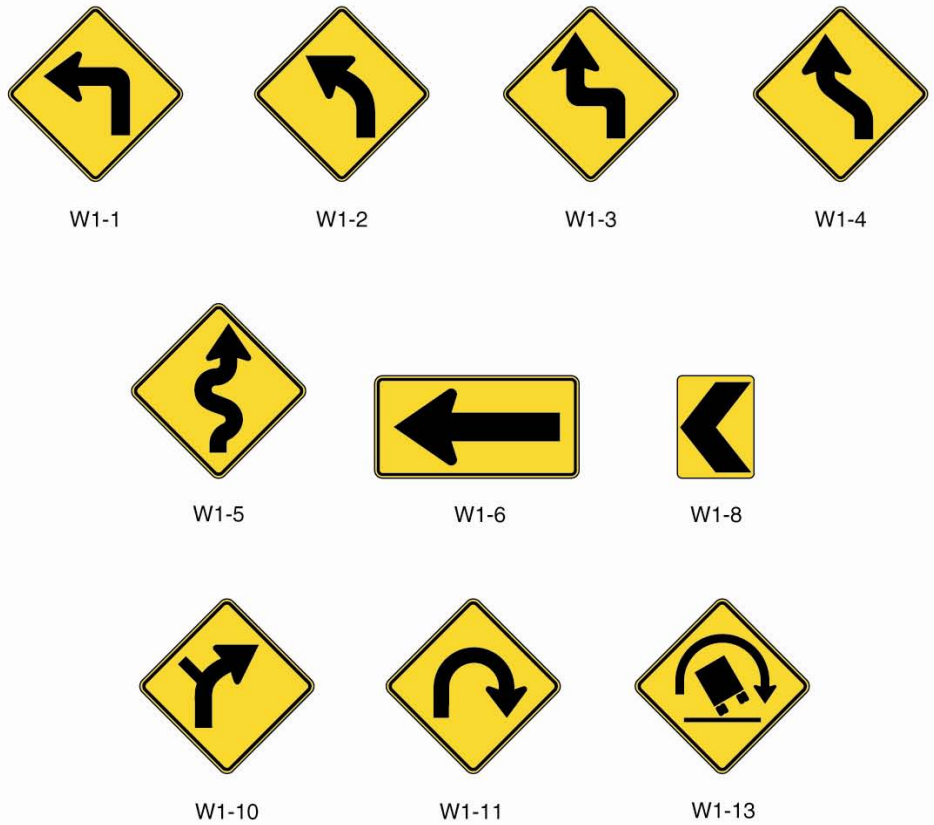
1. The distances are adjusted for a sign legibility distance of 175 ft for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 ft, which is appropriate for an alignment warning symbol sign.
2. Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PIEV time of 14.0 to 14.5 seconds for vehicle maneuvers (2001 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 175 ft for the appropriate sign.
3. Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2001 AASHTO Policy, Stopping Sight Distance, Exhibit 3-1, providing a PIEV time of 2.5 seconds, a deceleration rate of 11.2 ft/second^2, minus the sign legibility distance of 175 ft.
4. Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PIEV time, a vehicle deceleration rate of 10 ft/second^2, minus the sign legibility distance of 250 ft.
5. No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing to provide adequate advance warning for the driver.

Table 2C-4a. Guidelines for Minimum Spacing between Warning Signs

DelDOT Rev.

Posted or 85th Percentile Speed	Minimum Spacing	Posted or 85th Percentile Speed	Minimum Spacing
20 mph	50 ft	45 mph	300 ft
25 mph	75 ft	50 mph	400 ft
30 mph	100 ft	55 mph	500 ft
35 mph	150 ft	60 mph	600 ft
40 mph	200 ft	65 mph	700 ft

Figure 2C-1. Horizontal Alignment Signs



DelDOT Revision

Section 2C.07 <u>Combination Horizontal Alignment/Advisory Speed Signs (W1-1a, W1-2a)</u>
(NOT APPLICABLE IN DELAWARE)

DelDOT Rev.

Table 2C-5. Horizontal Alignment Sign Usage

Number of Alignment Changes	Advisory Speed	
	≤ 50 km/h (≤ 30 MPH)	**> 50 km/h (> 30 MPH)**
1	Turn (W1-1) [1]	Curve (W1-2) [1]
2 [2]	Reverse Turn [3] (W1-3)	Reverse Curve [3] (W1-4)
3 or more [2]	Winding Road [3] (W1-5)	

Notes:
1. Engineering judgment should be used to determine whether the Turn or Curve sign should be used.
2. Alignment changes are in opposite directions and are separated by a tangent distance of 180 m (600 ft) or less.
3. A Right Reverse Turn (W1-3R), Right Reverse Curve (W1-4R), or Right Winding Road (W1-5R) sign is used if the first change in alignment is to the right; a Left Reverse Turn (W1-3L), Left Reverse Curve (W1-4L), or Left Winding Road (W1-5L) sign is used if the first change in alignment is to the left.

Section 2C.08 Combination Horizontal Alignment/Intersection Sign (W1-10)

Option:

The Turn (W1-1) sign or the Curve (W1-2) sign may be combined with the Cross Road (W2-1) sign or the Side Road (W2-2 or W2-3) sign to create a combination Horizontal Alignment/Intersection (W1-10) sign (see Figure 2C-1) that depicts the condition where an intersection occurs within a turn or curve.

Guidance:

Elements of the combination Horizontal Alignment/Intersection sign related to horizontal alignment should conform to Section 2C.06, and elements related to intersection configuration should conform to Section 2C.37. No more than one Cross Road or two Side Road symbols should be shown on any one combination Horizontal Alignment/Intersection sign.

Section 2C.09 One-Direction Large Arrow Sign (W1-6)

Option:

A One-Direction Large Arrow (W1-6) sign (see Figure 2C-1) may be used to delineate a change in horizontal alignment.

Standard:

The One-Direction Large Arrow sign shall be a horizontal rectangle with an arrow pointing to the left or right.

If used, the One-Direction Large Arrow sign shall be installed on the outside of a turn or curve in line with and at approximately a right angle to approaching traffic.

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

Guidance:

The One-Direction Large Arrow sign should be visible for a sufficient distance to provide the road user with adequate time to react to the change in alignment.

Section 2C.10 Chevron Alignment Sign (W1-8)

Option:

The Chevron Alignment (W1-8) sign (see Figure 2C-1) may be used to provide additional emphasis and guidance for a change in horizontal alignment. A Chevron Alignment sign may be used as an alternate or supplement to standard delineators on curves or to the One-Direction Large Arrow (W1-6) sign.

Standard:

The Chevron Alignment sign shall be a vertical rectangle. No border shall be used on the Chevron Alignment sign.

If used, Chevron Alignment signs shall be installed on the outside of a turn or curve, in line with and at approximately a right angle to approaching traffic.

Option:

A Chevron Alignment sign may be used on the far side of an intersection to inform drivers of a change of horizontal alignment for through traffic.

Guidance:

Spacing of Chevron Alignment signs should be such that the road user always has at least two in view, until the change in alignment eliminates the need for the signs.

Chevron Alignment signs should be visible for a sufficient distance to provide the road user with adequate time to react to the change in alignment.

Figure 2C-2. Vertical Grade Signs

W7-1

W7-1a-DE

W7-3a

DelDOT Revision

Section 2C.11 <u>Truck Rollover Warning Sign (W1-13)</u>

Option:

A Truck Rollover Warning (W1-13) sign (see Figure 2C-1) may be used to warn drivers of vehicles with a high center of gravity, such as trucks, tankers, and recreational vehicles, of a curve or turn having geometric conditions that are prone to cause such vehicles to lose control and overturn.

Standard:

When the Truck Rollover Warning (W1-13) sign is used, it shall be accompanied by an Advisory Speed (W13-1) plaque (see Figure 2C-5) indicating the recommended speed for vehicles with a higher center of gravity.

Option:

The Truck Rollover Warning sign may be displayed either as a static sign, a static sign supplemented by a flashing warning beacon, or as a changeable message sign activated by the detection of an approaching vehicle with a high center of gravity that is traveling in excess of the recommended speed for the condition.

Support:

The curved arrow on the Truck Rollover Warning sign shows the direction of roadway curvature. The truck tips in the opposite direction.

Section 2C.12 <u>Hill Signs (W7-1, W7-1a-DE)</u>

Guidance:

The Hill (W7-1) sign (see Figure 2C-2) should be used in advance of a downgrade where the length, percent of grade, horizontal curvature, and/or other physical features require special precautions on the part of road users.

Supplemental plaques (see Section 2C.48) and larger signs should be used for emphasis or where special hill characteristics exist. On longer grades, the use of the Hill sign with a distance (W7-3a) plaque at periodic intervals of approximately 1.6 km (1 mi) spacing should be considered. **DelDOT Rev.**

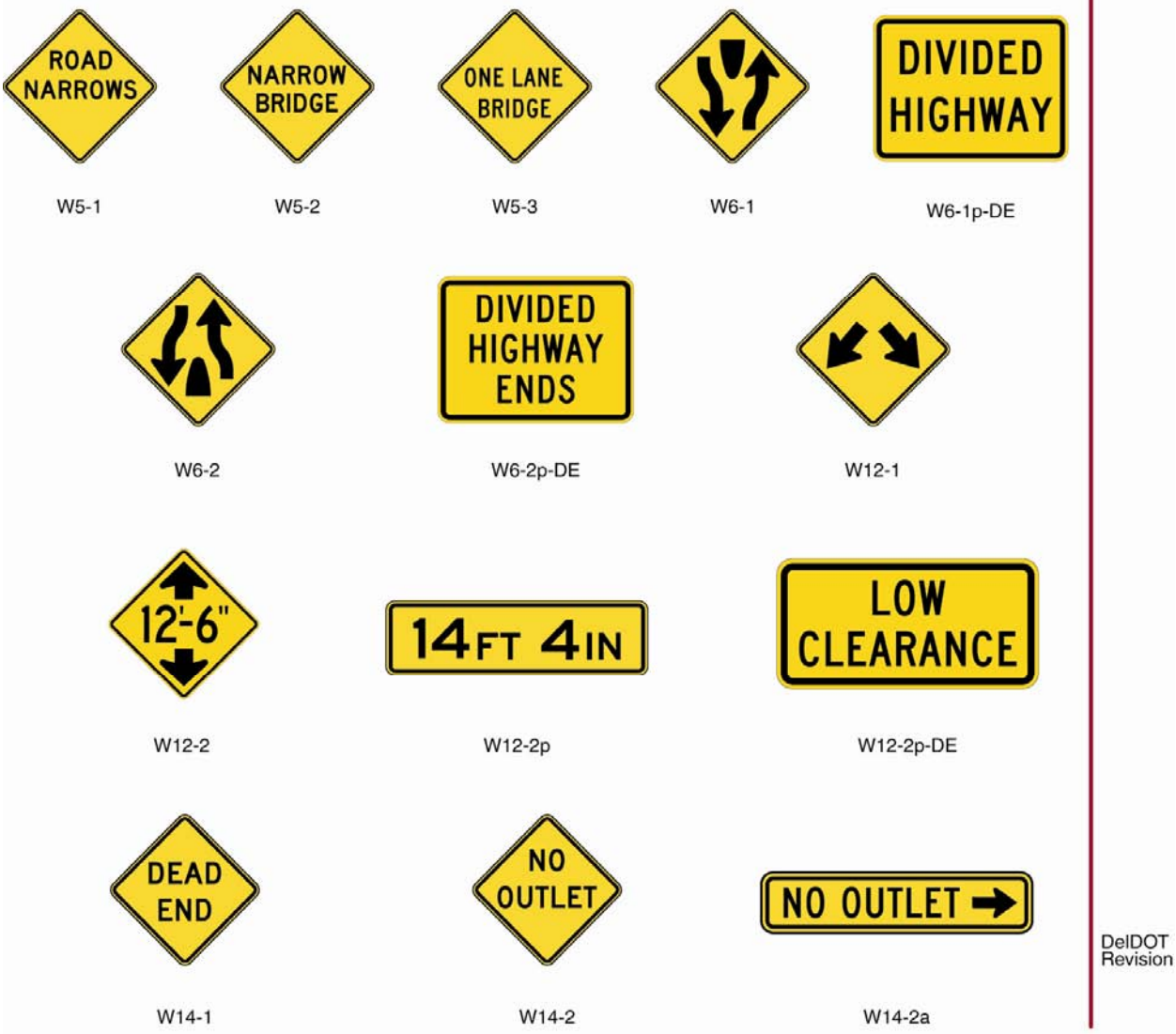
Option:

The word message HILL (W7-1a-DE) sign may be used as an alternate to the symbol (W7-1) sign.

Section 2C.13 <u>Truck Escape Ramp Signs (W7-4 Series) (NOT APPLICABLE IN DELAWARE)</u>

Section 2C.14 <u>HILL BLOCKS VIEW Sign (W7-6) (NOT APPLICABLE IN DELAWARE)</u>

Figure 2C-3. Miscellaneous Warning Signs



Section 2C.15 <u>ROAD NARROWS Sign (W5-1)</u>

Guidance:

A ROAD NARROWS (W5-1) sign (see Figure 2C-3) should be used in advance of a transition on two-lane roads where the pavement width is reduced abruptly to a width such that vehicles might not be able to pass without reducing speed.

Option:

Additional emphasis may be provided by the use of object markers and delineators (see Chapters 3C and 3D). The Advisory Speed (W13-1) plaque (see Section 2C.46) may be used to indicate the recommended speed.

Section 2C.16 <u>NARROW BRIDGE Sign (W5-2)</u>

Guidance:

A NARROW BRIDGE (W5-2) sign (see Figure 2C-3) should be used in advance of any bridge or culvert having a two-way roadway clearance width of 4.9 to 5.5 m (16 to 18 ft), or any bridge or culvert having a roadway clearance less than the width of the approach travel lanes.

Additional emphasis should be provided by the use of object markers, delineators, and/or pavement markings.

Option:

A NARROW BRIDGE sign may be used in advance of a bridge or culvert on which the approach shoulders are narrowed or eliminated.

Section 2C.17 ONE LANE BRIDGE Sign (W5-3)

Guidance:

A ONE LANE BRIDGE (W5-3) sign (see Figure 2C-3) should be used on two-way roadways in advance of any bridge or culvert:

A. Having a clear roadway width of less than 4.9 m (16 ft); or
B. Having a clear roadway width of less than 5.5 m (18 ft) when commercial vehicles constitute a high proportion of the traffic; or
C. Having a clear roadway width of 5.5 m (18 ft) or less where the sight distance is limited on the approach to the structure.

Additional emphasis should be provided by the use of object markers, delineators, and/or pavement markings.

Section 2C.18 Divided Highway (Road) Sign (W6-1, W6-1p-DE) **DelDOT Rev.**

Guidance:

A Divided Highway (W6-1) symbol sign (see Figure 2C-3) should be used on the approaches to a section of highway (not an intersection or junction) where the opposing flows of traffic are separated by a median or other physical barrier.

Option:

The word message DIVIDED HIGHWAY (W6-1p-DE) sign (see Figure 2C-3) may be used as an alternate to the symbol sign. **DelDOT Rev.**

Section 2C.19 Divided Highway (Road) Ends Sign (W6-2, W6-2p-DE)

Guidance:

A Divided Highway Ends (W6-2) symbol sign (see Figure 2C-3) should be used in advance of the end of a section of physically divided highway (not an intersection or junction) as a warning of two-way traffic ahead.

Option:

The DIVIDED HIGHWAY ENDS (W6-2p-DE) sign (see Figure 2C-3) may be used as an alternate to the symbol sign. **DelDOT Rev.**

The Two-Way Traffic (W6-3) symbol sign or TWO WAY TRAFFIC (W6-3p-DE) plaque (see Section 2C.34) may be used to give warning and notice of the transition to a two-lane, two-way section.

Section 2C.20 Double Arrow Sign (W12-1)

Option:

The Double Arrow (W12-1) sign (see Figure 2C-3) may be used to advise road users that traffic is permitted to pass on either side of an island, obstruction, or gore in the roadway. Traffic separated by this sign may either rejoin or change directions.

Guidance:

If used on an island, the Double Arrow sign should be mounted near the approach end.

If used in front of a pier or obstruction, the Double Arrow sign should be mounted on the face of, or just in front of, the obstruction. Where stripe markings are used on the obstruction, they should be discontinued to leave a 75 mm (3 in) space around the outside of the sign.

Section 2C.21 DEAD END/NO OUTLET Signs (W14-1, W14-2, W14-2a)

DelDOT Rev.

Option:

The DEAD END (W14-1) sign (see Figure 2C-3) may be used at the entrance of a single road or street that terminates in a dead end or cul-de-sac. The NO OUTLET (W14-2) sign may be used at the entrance to a road or road network from which there is no other exit.

The NO OUTLET (W14-2a) sign (see Figure 2C-3) may be used in combination with Street Blade (D3-1-DE, D3-1-DE1, D3-1-DE2, or D3-1-DE3) signs (see Section 2D.38) to warn turning traffic that the cross street ends in the direction indicated by the arrow.

DelDOT Rev.

At locations where the cross street does not have a name, the W14-2a sign may be used alone in place of a street blade sign.

Standard:

When the W14-1 or W14-2 sign is used, the sign shall be posted as near as practical to the entry point or at a sufficient advance distance to permit the road user to avoid the dead end or no outlet condition by turning off, if possible, at the nearest intersecting street.

The NO OUTLET (W14-2a) sign shall not be used instead of the W14-2 sign where traffic can proceed straight through the intersection into the no outlet area.

DelDOT Rev.

Section 2C.22 Low Clearance Signs (W12-2, W12-2p and W12-2p-DE)

Standard:

The Low Clearance (W12-2) sign (see Figure 2C-3) shall be used to warn road users of clearances less than 300 mm (12 in) above the statutory maximum vehicle height.

Guidance:

The actual clearance should be shown on the Low Clearance sign to the nearest 25 mm (1 in) not exceeding the actual clearance. However, in areas that experience changes in temperature causing frost action, a reduction, not exceeding 75 mm (3 in), should be used for this condition.

Where the clearance is less than the legal maximum vehicle height, the W12-2 sign with a supplemental distance plaque should be placed at the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around.

In the case of an arch or other structure under which the clearance varies greatly, two or more signs should be used as necessary on the structure itself to give information as to the clearances over the entire roadway.

Clearances should be evaluated periodically, particularly when resurfacing operations have occurred.

Option:

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 plaque (W12-2p or W12-2p-DE) with the appropriate legend (see Figure 2C-3).

DelDOT Rev.

Section 2C.23 BUMP and DIP Signs (W8-1, W8-2)

Guidance:

BUMP (W8-1) and DIP (W8-2) signs (See Figure 2C-4) should be used to give warning of a sharp rise of depression in the profile of the road.

Option:

These signs may be supplemented with an Advisory Speed plaque (see Section 2C.46).

Standard:

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

Guidance:

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

Section 2C.24 SPEED HUMP Sign (W17-1)

Guidance:

The SPEED HUMP (W17-1) sign (see Figure 2C-4) should be used to give warning of a vertical deflection in the roadway that is designed to limit the speed of traffic.

If used, the SPEED HUMP sign should be supplemented by an Advisory Speed plaque (see Section 2C.46).

Option:

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.

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

Support:

Speed humps generally provide more gradual vertical deflection than speed bumps. Speed bumps limit the speed of traffic more severely than speed humps. However, this difference in engineering terminology is not well known by the public, so for signing purposes the terms are interchangeable.

Section 2C.25 PAVEMENT ENDS Sign (W8-3) (NOT APPLICABLE IN DELAWARE)

Section 2C.26 Shoulder and Road Condition Signs (W8-4, W8-8, W8-9, W8-11)

Option:

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

The ROUGH ROAD (W8-8) sign (see Figure 2C-4) may be used to warn of a rough road condition.

The LOW SHOULDER (W8-9) sign (see Figure 2C-4) may be used to warn of a shoulder condition where there is an elevation difference of less than 75 mm (3 in) between the shoulder and the travel lane. **DelDOT Rev.**

The UNEVEN LANES (W8-11) sign (see Figure 2C-4) may be used to warn of a difference in elevation between adjacent lanes.

Guidance:

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

Standard:

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

Section 2C.27 Slippery When Wet Sign (W8-5), WATER ON THE ROAD (W21-7-DE) Sign

Option:

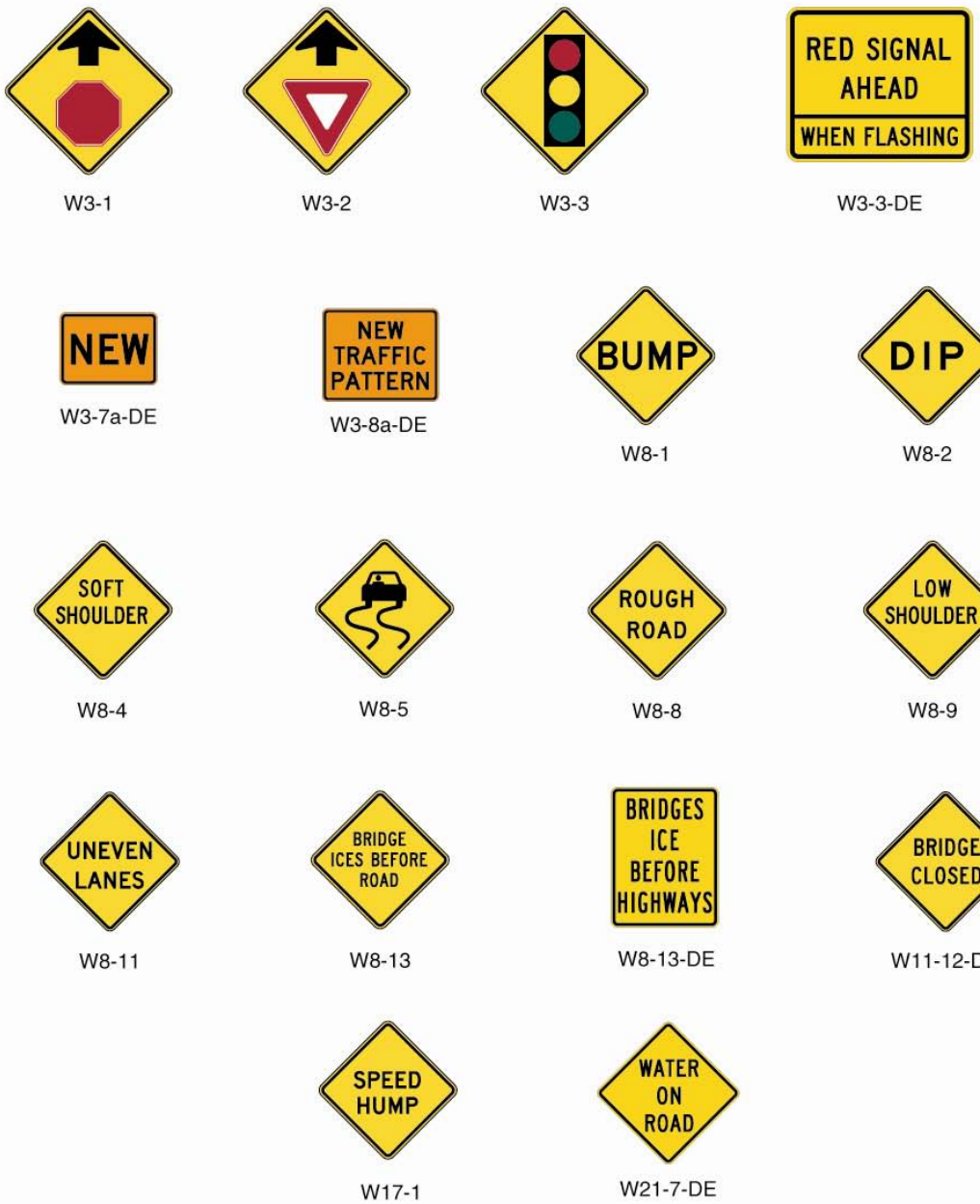
The Slippery When Wet (W8-5) sign (see Figure 2C-4) may be used to warn that a slippery condition might exist.

A WATER ON ROAD (W21-7-DE) sign (see Figure 2C-4) may be used to warn where water might be on the road or in areas known to be prone to flooding.

Guidance:

When used, Slippery When Wet and WATER ON ROAD 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. **DelDOT Rev.**

Figure 2C-4. Roadway Condition and Advance Traffic Control Signs



DelDOT Revision

Section 2C.28 BRIDGE ICES BEFORE ROAD and BRIDGES ICE BEFORE HIGHWAYS Signs (W8-13, W8-13-DE)

Option:

A BRIDGE ICES BEFORE ROAD (W8-13) or BRDIGES ICES BEFORE HIGHWAYS (W8-13-DE) sign (see Figure 2C-4) may be used in advance of bridges to advise bridge users of winter weather conditions. **DelDOT Rev.**

The BRIDGE ICES BEFORE ROAD or BRDIGES ICES BEFORE HIGHWAYS signs may be removed or covered during seasons of the year when its message is not relevant.

Section 2C.29 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-3-DE, W3-7a-DE, W3-8a-DE), BRIDGE CLOSED (W11-12-DE)

Standard:

The Advance Traffic Control symbol signs (see Figure 2C-4) include the Stop Ahead (W3-1), Yield Ahead (W3-2), Signal Ahead (W3-3), and RED SIGNAL AHEAD WHEN FLASHING (W3-3-DE) signs (see Figure 2C-4). The Signal Ahead (W3-3) sign shall be installed on all approaches to a traffic signal. The Stop Ahead (W3-1) and Yield Ahead (W3-2) signs shall be installed on approaches to a STOP (R1-1) sign (see Section 2B.04) or YIELD (R1-2) sign (see Section 2B.08) that is not visible for a sufficient distance to permit the road user to respond to the device (see Table 2C-4). DelDOT Rev.

A NEW (W3-7a-DE) signs (see Figure 2C-4) shall be used in combination with Advance Traffic Control symbol signs to warn that a new traffic signal, STOP sign, or YIELD sign has been installed. A NEW (W3-7a-DE) or NEW TRAFFIC PATTERN (W3-8a-DE) sign shall be installed for a minimum of 30 days and a maximum of 90 days.

The BRIDGE CLOSED (W11-12-DE) sign (see Figure 2C-4) should be placed a sufficient distance in advance of any bridge closure to warn road users that vehicular traffic is not permitted on the bridge.

Support:

Permanent obstructions causing the limited visibility might include roadway alignment or structures. Intermittent obstructions might include foliage or parked vehicles.

Guidance:

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

Option:

A Stop Ahead (W3-1) or Yield Ahead (W3-2) sign may be used for additional emphasis of the STOP or YIELD control, even when the visibility distance to the device is satisfactory.

The RED SIGNAL AHEAD WHEN FLASHING (W3-3-DE) sign with warning beacon(s) may be installed on approaches to a traffic signal where engineering judgment indicates a need to provide additional warning to motorists in advance of a red signal indication.

A supplemental street name plaque (see Section 2C.49) may be installed above or below an Advance Traffic Control sign.

A warning beacon may be used with an Advance Traffic Control sign.

A NEW TRAFFIC PATTERN (W3-8a-DE) sign (see Figure 2C-4) may be used in combination with a SIGNAL AHEAD (W3-3) sign to warn of modifications to a traffic signal phase or operation. DelDOT Rev.

Section 2C.30 Speed Reduction Sign (W3-5)

Guidance:

A Speed Reduction (W3-5) sign (see Figure 2C-5) should be used to inform road users of a reduced speed zone when engineering judgment indicates the need for advance notice to comply with the posted speed limit ahead.

Standard:

If used, Speed Reduction signs shall be followed by a Speed Limit (R2-1) sign installed at the beginning of the zone where the speed limit applies.

The speed limit displayed on the Speed Reduction sign shall be identical to the speed limit displayed on the subsequent Speed Limit sign.

Figure 2C-5. Advisory Speed and Speed Reduction Signs

Section 2C.31 Merge Signs (W4-1, W4-1p-DE, W4-5) **DelDOT Rev.**

Option:

A Merge (W4-1) sign (see Figure 2C-6) 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.

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.

Guidance:

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.

Where two roadways of approximately equal importance converge, a Merge sign should be placed on each roadway.

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-6) should be used to better portray the actual geometric conditions to road users on the entering roadway.

The Merge sign should not be used where two roadways converge and merging movements are not required.

The Merge sign should not be used in place of a Lane Ends sign where lanes of traffic moving on a single roadway must merge because of a reduction in the actual or usable pavement width (see Section 2C.33).

The MERGE (W4-1p-DE) plate (see Figure 2C-6) may be used to supplement a merge sign. **DelDOT Rev.**

Section 2C.32 Added Lane Signs (W4-3, W4-6)

Guidance:

The Added Lane (W4-3) sign (see Figure 2C-6) 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.

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-6) should be used to better portray the actual geometric conditions to road users on the curving roadway.

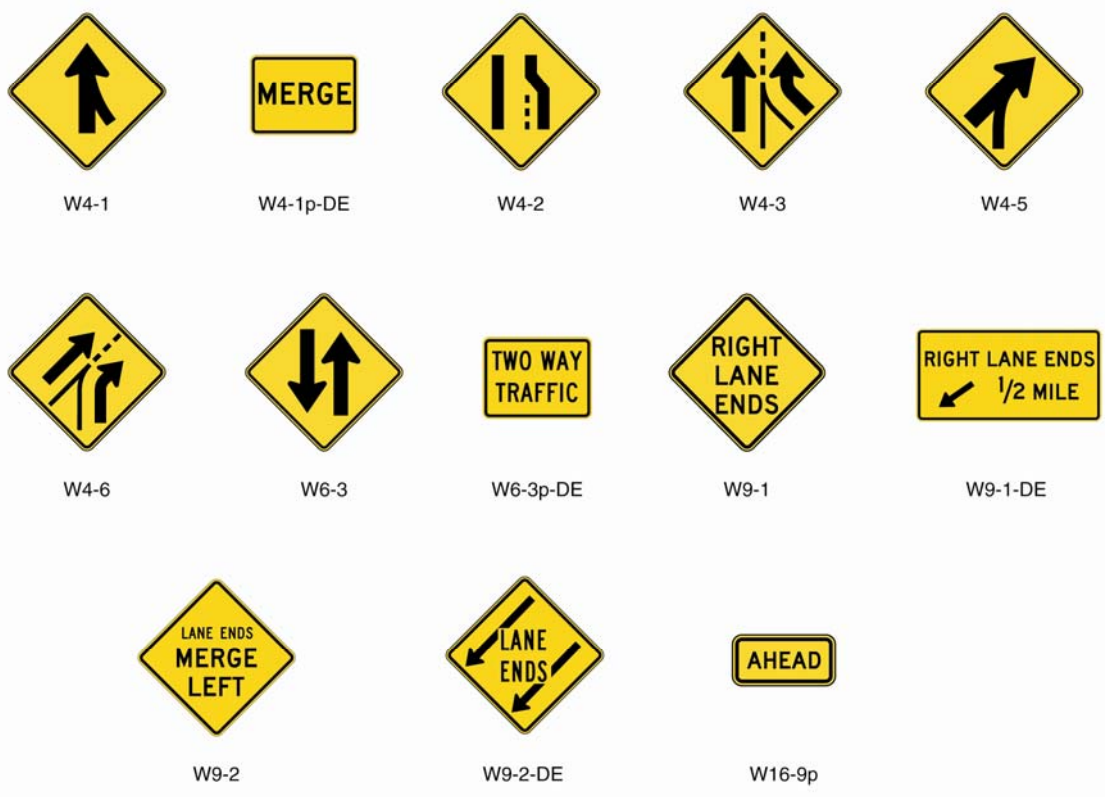
Section 2C.33 Lane Ends Signs (W4-2, W9-1, W9-1-DE, W9-2, W9-2-DE)

Guidance:

The LANE ENDS MERGE LEFT (RIGHT) (W9-2) word sign and the Lane Ends (W4-2) symbol sign should be used to warn of the reduction in the number of traffic lanes in the direction of travel on a roadway (see Figure 2C-6). For roadways with a posted speed limit or 85th percentile speed limit equal to or greater than 45 MPH, the LANE ENDS ((LEFT, RIGHT) ARROWS) (W9-2-DE) symbol sign should be placed at the beginning of the lane taper. The location of lane reduction signing for the different types of roadways in Delaware is based on the posted speed limit (see Figure 2C-6A through 2C-6C). **DelDOT Rev.**

The RIGHT (LEFT) LANE ENDS (W9-1) word sign or LEFT (RIGHT) LANE ENDS XX MILES (W9-1-DE) (see Figure 2C-6) should be used in advance of the LANE ENDS MERGE LEFT (RIGHT) (W9-2) word sign as additional warning or to emphasize that the traffic lane is ending and that a merging maneuver will be required (see Figures 2C-6A through 2C-6C).

Figure 2C-6. Merging and Passing Signs



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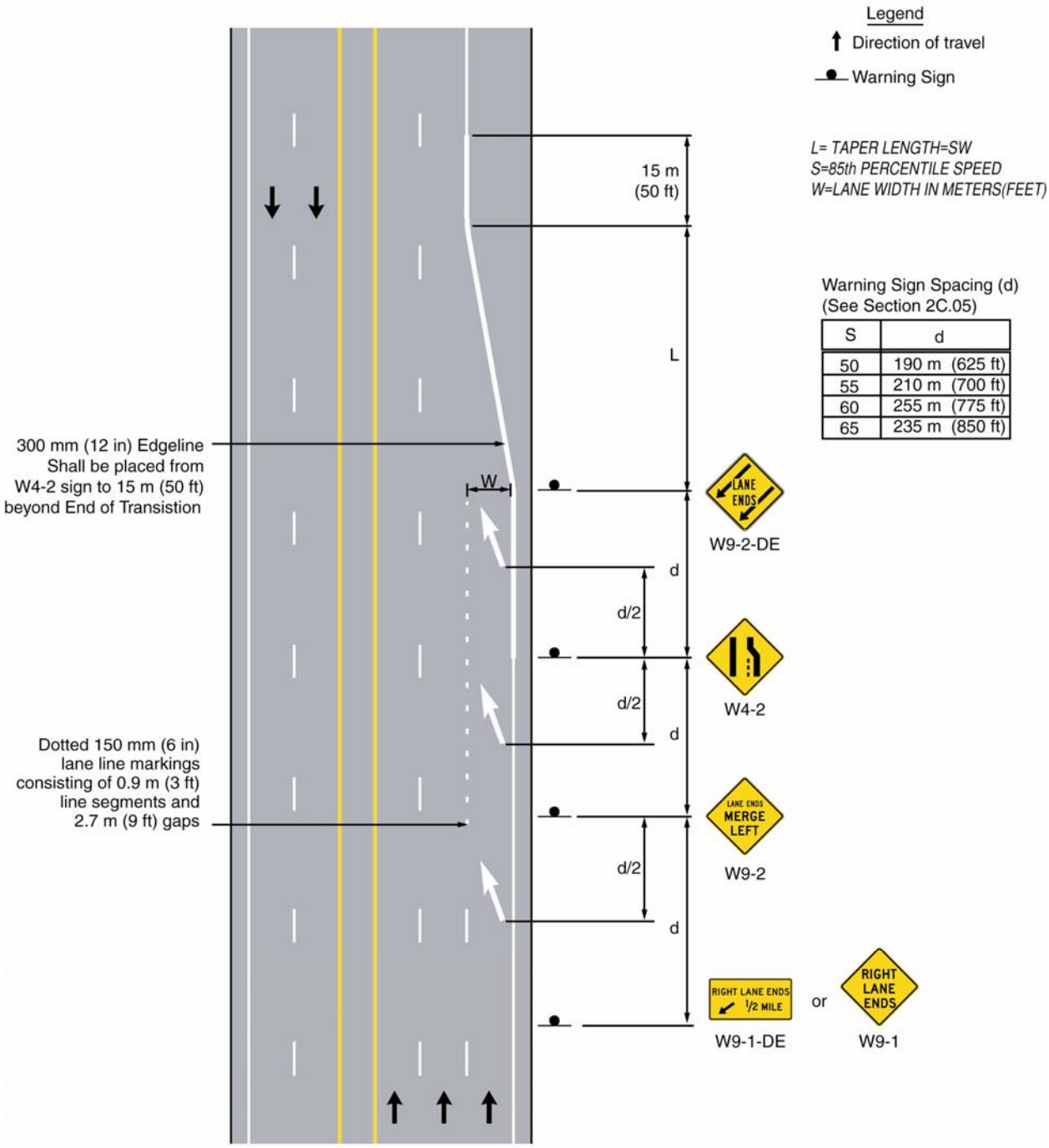
On one-way streets or on divided highways where the width of the median will permit, two Lane Ends signs may be placed facing approaching traffic, one on the right side and the other on the left side or median.

The reduction in the number of traffic lanes may also be delineated with roadway edge lines (see Section 3B.09) and/or roadway delineation (see Chapter 3D).

Where an extra lane has been provided for slower moving traffic (see Section 2B.32), a RIGHT (LEFT) LANE ENDS (W9-1) word sign or a Lane Ends (W4-2) symbol sign should be installed in advance of the end of the extra lane.

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

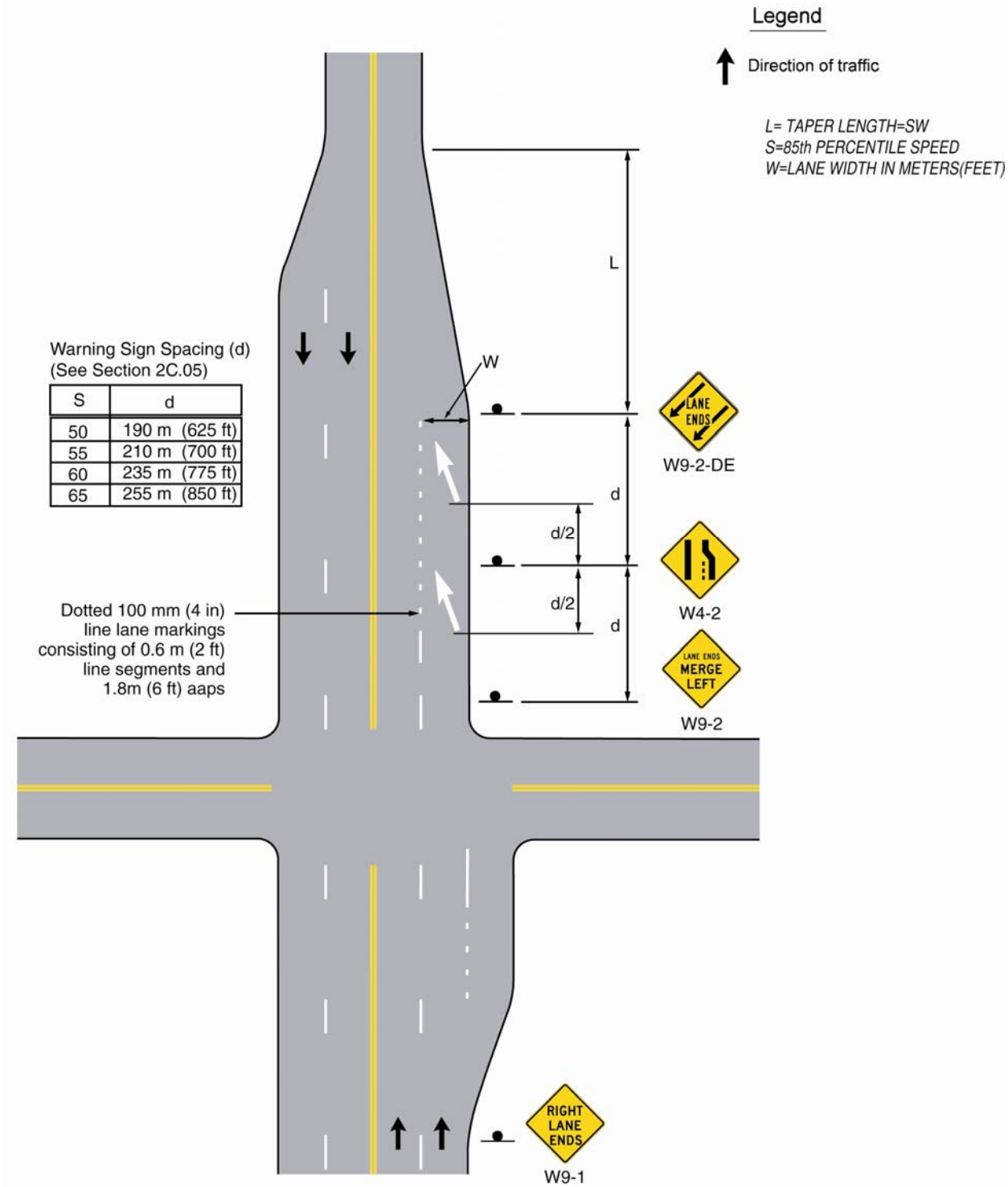
Figure 2C-6A. Example of Lane Reduction Signing for Interstates, Freeways or Expressways (Over 45 mph)
(DelDOT MUTCD Only)



Warning Sign Spacing (d)
(See Section 2C.05)

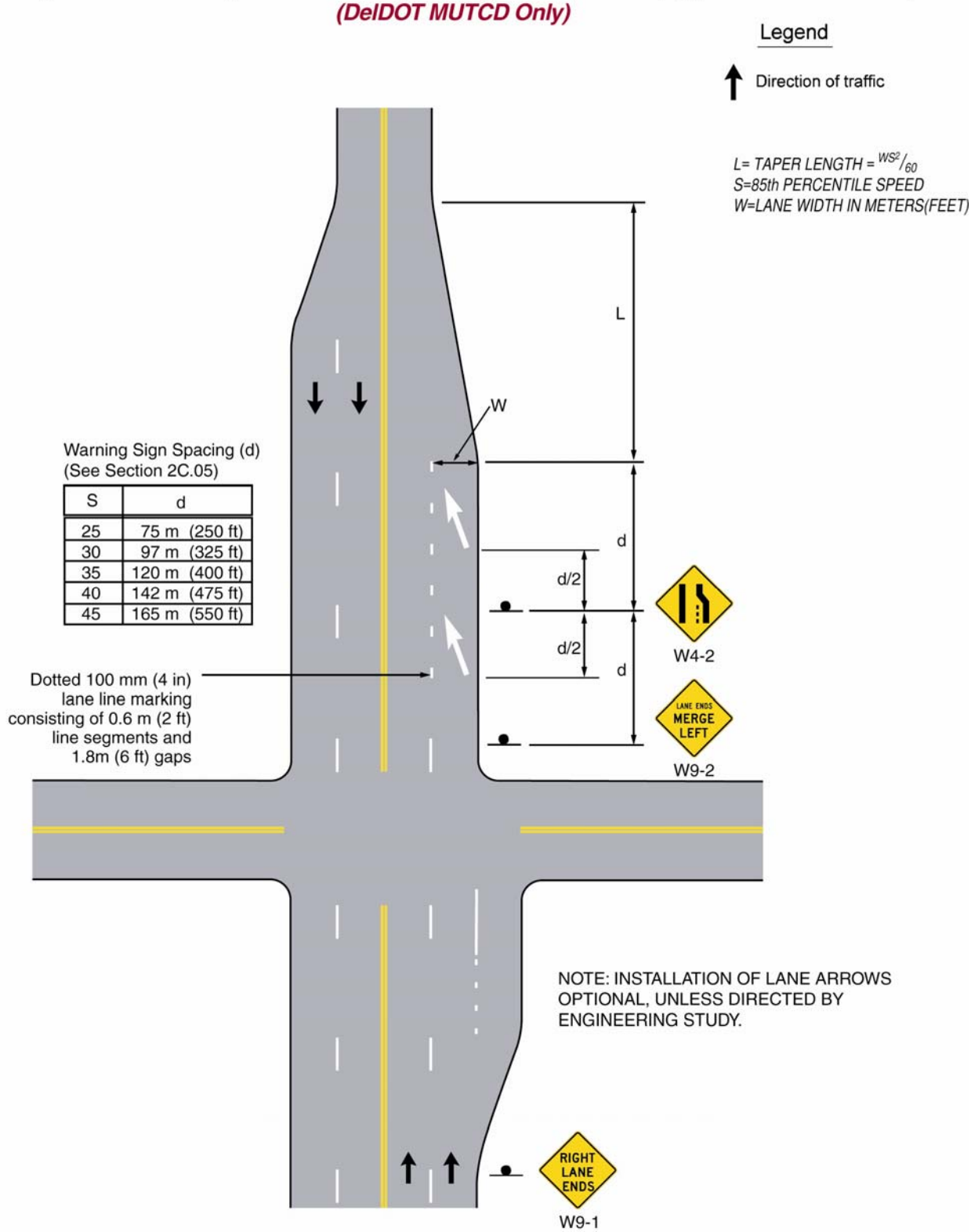
S	d
50	190 m (625 ft)
55	210 m (700 ft)
60	255 m (775 ft)
65	235 m (850 ft)

Figure 2C-6B. Example of Lane Reduction Beyond Intersection Signing Along All Other Roads (NON Interstates, Freeways or Expressways) (Over 45 M.P.H.)
(DelDOT MUTCD Only)



S	d
50	190 m (625 ft)
55	210 m (700 ft)
60	235 m (775 ft)
65	255 m (850 ft)

Figure 2C-6C. Example of Lane Reduction Beyond Intersection Signing Along All Other Roads (NON Interstates, Freeways or Expressways) (45 M.P.H. and Under)
(DelDOT MUTCD Only)



S	d
25	75 m (250 ft)
30	97 m (325 ft)
35	120 m (400 ft)
40	142 m (475 ft)
45	165 m (550 ft)

Section 2C.34 Two-Way Traffic, Ahead Sign (W6-3, W6-3p-DE, W16-9p) DelDOT Rev.

Guidance:

A Two-Way Traffic (W6-3) sign (see Figure 2C-6) 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.

A Two-Way Traffic (W6-3) sign with an AHEAD (W16-9p) plaque (see Figure 2C-6) 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-12, Sheet 2 of 2).

Option:

The Two-Way Traffic (W6-3) sign may be used at intervals along a two-lane, two-way roadway.

The TWO WAY TRAFFIC (W6-3p-DE) (see Figure 2C-6) plaque may be used to supplement the Divided Highway (Road) Ends (W6-2) sign discussed in Section 2C.19.

Section 2C.35 NO PASSING ZONE Sign (W14-3) (NOT APPLICABLE IN DELAWARE) DelDOT Rev.

Section 2C.36 Advisory Exit and Ramp Speed Signs (W13-2, W13-3)

Standard:

Advisory Exit and Ramp Speed signs shall be vertical rectangles. The advisory Exit Speed (W13-2) and Ramp Speed (W13-3) signs (see Figure 2C-5) shall be used where engineering judgment indicates the need to advise road users of the recommended speed on an exit or a ramp.

Guidance:

When used, the Exit Speed sign should be installed along the deceleration lane.

The Exit Speed sign should be visible in time for the road user to make a reasonably safe slowing and exiting maneuver.

The Ramp Speed sign should be visible in time for the road user to reduce to the recommended speed.

Option:

One or more Ramp Speed signs may be used along the deceleration lane, beyond the gore, or along the ramp (see Figure 2C-7). Based on engineering judgment, the Ramp Speed sign may be installed on the inside or outside of the curve to enhance its visibility.

A Turn (W1-1) or Curve (W1-2) sign with an Advisory Speed (W13-1) plaque may be used in place of a Ramp Speed sign if it is located such that it clearly does not apply to drivers on the main roadway.

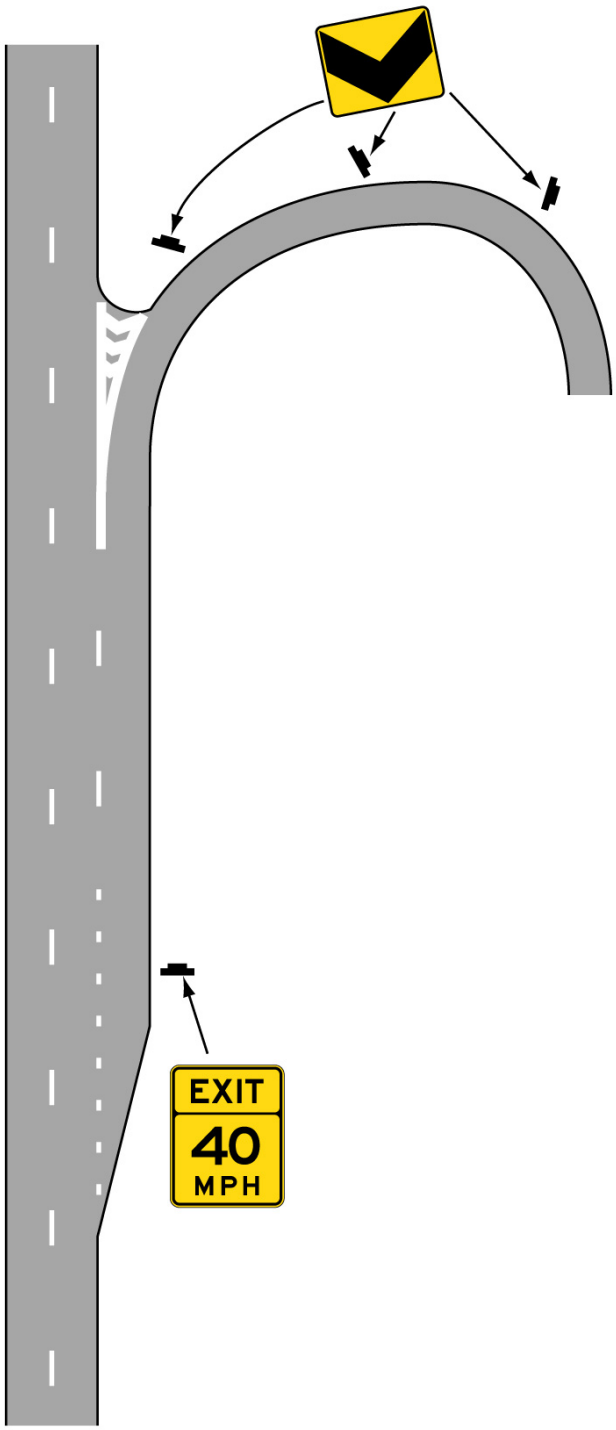
A Curve Speed sign may be used at and beyond the beginning of a curve following a Horizontal Alignment and Advisory Speed sign combination, or when there is a need to remind road users of the recommended speed, or where the recommended speed changes because of a change in curvature (see Section 2C.06). Based on engineering judgment, the Curve Speed sign may be installed on the inside or outside of the curve to enhance its visibility.

The advisory speed may be the 85th-percentile speed of free-flowing traffic, the speed corresponding to a 16-degree ball bank indicator reading, or the speed otherwise determined by an engineering study because of unusual circumstances.

Support:

A 10-degree ball-bank indicator reading, formerly used in determining advisory speeds, is based on research from the 1930s. In modern vehicles, the 85th-percentile speed on curves approximates a 16-degree reading. This is the speed at which most drivers' judgment recognizes incipient instability along a ramp or curve.

Figure 2C-7. Example of Advisory Speed Signing for an Exit Ramp



DelDOT Revision

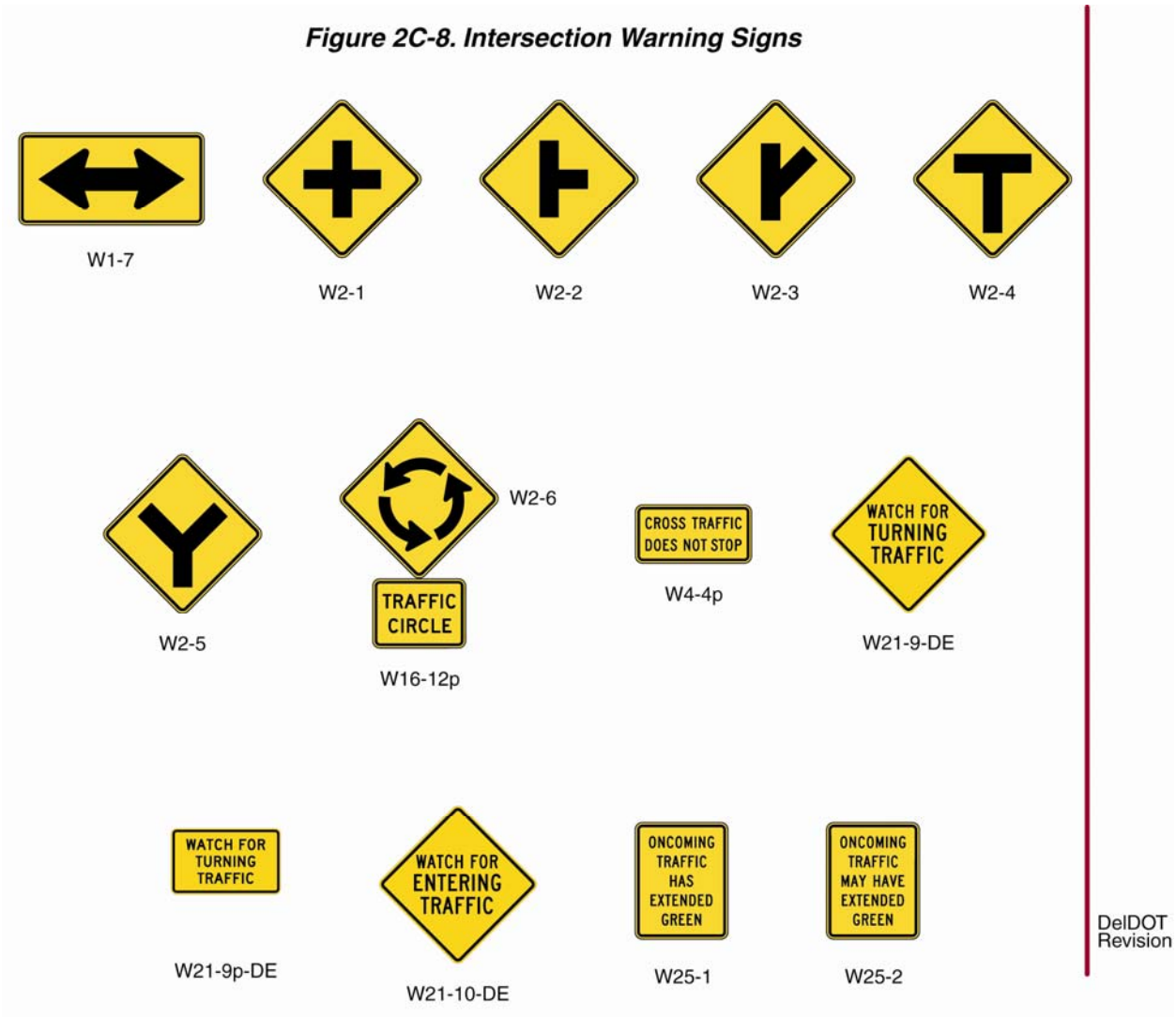


Figure 2C-8. Intersection Warning Signs

Section 2C.37 <u>Intersection Warning Signs (W2-1 through W2-6, W16-12p, W21-9-DE, W21-9p-DE and W21-10-DE)</u>

Option:

A Cross Road (W2-1) symbol, Side Road (W2-2 or W2-3) symbol, T-Symbol (W2-4), Y-Symbol (W2-5), WATCH FOR TURNING TRAFFIC (W21-9-DE, W21-9p-DE) or WATCH FOR ENTERING TRAFFIC (W21-10-DE) sign (see Figure 2C-8) may be used in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic. The Circular Intersection (W2-6) symbol sign accompanied by an educational TRAFFIC CIRCLE (W16-12p) plaque (see Figure 2C-8) may be installed in advance of a circular intersection (see Figure 2D-6). **DelDOT Rev.**

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

An advance street name plaque (see Section 2C.49) may be installed above or below an Intersection Warning sign.

Guidance:

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.

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

signs, or signals. The Circular Intersection symbol (W2-6) sign should be installed on the approach to a YIELD sign controlled roundabout intersection.

Where the side roads are not opposite of each other, the symbol for the intersection should indicate a slight offset.

Section 2C.38 Two-Direction Large Arrow Sign (W1-7)

Standard:

The Two-Direction Large Arrow (W1-7) sign (see Figure 2C-8) shall be a horizontal rectangle.

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

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.

Guidance:

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.

Section 2C.39 Traffic Signal Signs (W25-1, W25-2)

Standard:

Unless a separate left-turn signal face is provided and is operated as described in Section 4D.06, if the possibility exists that a CIRCULAR YELLOW signal indication could be displayed to an approach from which drivers are turning left permissively without the simultaneous display of a CIRCULAR YELLOW signal indication to the opposing approach (see Section 4D.05), either a W25-1 or a W25-2 sign (see Figure 2C-8) shall be installed near the left-most signal head. If the operation described in the previous sentence occurs on a cycle-by-cycle basis during all times that the traffic control signal is operated in the stop-and-go mode, the ONCOMING TRAFFIC HAS EXTENDED GREEN (W25-1) sign shall be used; if the operation occurs only occasionally, the ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN (W25-2) sign shall be used.

Section 2C.40 Vehicular Traffic Signs (W8-6, W11-1, W11-1p-DE, W11-5, W11-8, W11-8-DE, W11-10, W11-11, W11-12p, W11-12p-DE, W11-14, W11-16-DE, W11-22-DE, W11-24a-DE, W11-25-DE)

DelDOT Rev.

Option:

Vehicular Traffic (W8-6, W11-1, W11-1p-DE, W11-5, W11-8, W11-8-DE, W11-10, W11-11, W11-12p, W11-14, W11-16-DE, W11-22-DE, W11-24a-DE, and W11-25-DE signs (see Figure 2C-9) may be used to alert road users to locations where unexpected entries into the roadway by trucks, bicyclists, farm vehicles, emergency vehicles, golf carts, horse-drawn vehicles, or other vehicles might occur. The TRUCK CROSSING (W8-6) word message sign may be used as an alternate to the Truck Crossing symbol (W11-10) sign.

Support:

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

Guidance:

Vehicular Traffic 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.

If the condition or activity is seasonal or temporary, the Vehicular Traffic sign should be removed or covered when the condition or activity does not exist.

Option:

Supplemental plaques (see Section 2C.43) with legends such as AHEAD, XX METERS (XX FEET), NEXT XX km (NEXT XX MILES), or SHARE THE ROAD may be mounted below Vehicular Traffic signs to provide advance notice to road users of unexpected entries.

The Bicycle Crossing (W11-1p-DE) or HIDDEN ENTRANCE (W11-24a-DE) supplemental plate may be used in combination with another warning sign that carries a higher priority message.

DelDOT Rev.

Standard:

The Emergency Vehicle (W11-8) sign with the EMERGENCY SIGNAL AHEAD (W11-12p) supplemental plaque (see Figure 2C-9) shall be placed in advance of all emergency-vehicle traffic control signals (see Chapter 4F), except as stated in the option below.

The FIRE SIGNAL (W11-12p-DE) sign, mounted overhead in advance of existing emergency vehicle traffic control signals, shall not be used at new emergency-vehicle traffic control signals. See Sections 2B.45 and 4F.02 for additional guidance

DelDOT Rev.

Option:

The Emergency Vehicle (W11-8) sign may be used in advance of the emergency vehicle station when no emergency-vehicle traffic control signal is present.

The EMERGENCY VEHICLE (W11-8-DE) sign (see Figure 2C-9) may be used in advance of an emergency facility that does not include a fire company.

Figure 2C-9. Vehicular Traffic Signs

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Section 2C.41 Nonvehicular Signs (W11-2, W11-3, W11-4, W11-7, W11-7-DE, W11-9, W11-11-DE, W11-23-DE, W21-11-DE, W21-11p-DE, W21-14-DE, W21-15-DE)

DelDOT Rev.

Option:

Nonvehicular signs (see Figure 2C-10) may be used to alert road users in advance of locations where unexpected entries into the roadway or shared use of the roadway by pedestrians, animals, and other crossing activities might occur.

Support:

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

Option:

When used in advance of a crossing, Nonvehicular warning signs may be supplemented with supplemental plaques (see Section 2C.43) with the legend AHEAD, XX METERS (XX FEET), or NEXT XX km (NEXT XX MILES) to provide advance notice to road users of crossing activity.

The Watch Children (W21-11p-DE) supplemental plate may be used in combination with another warning sign that carries a higher priority message.

DelDOT Rev.

Standard:

When used at the crossing, Nonvehicular signs shall be supplemented with a diagonal downward pointing arrow (W16-7p) plaque (see Figure 2C-11) showing the location of the crossing

Option:

The crossing location may be defined with crosswalk markings (see Section 3B.17).

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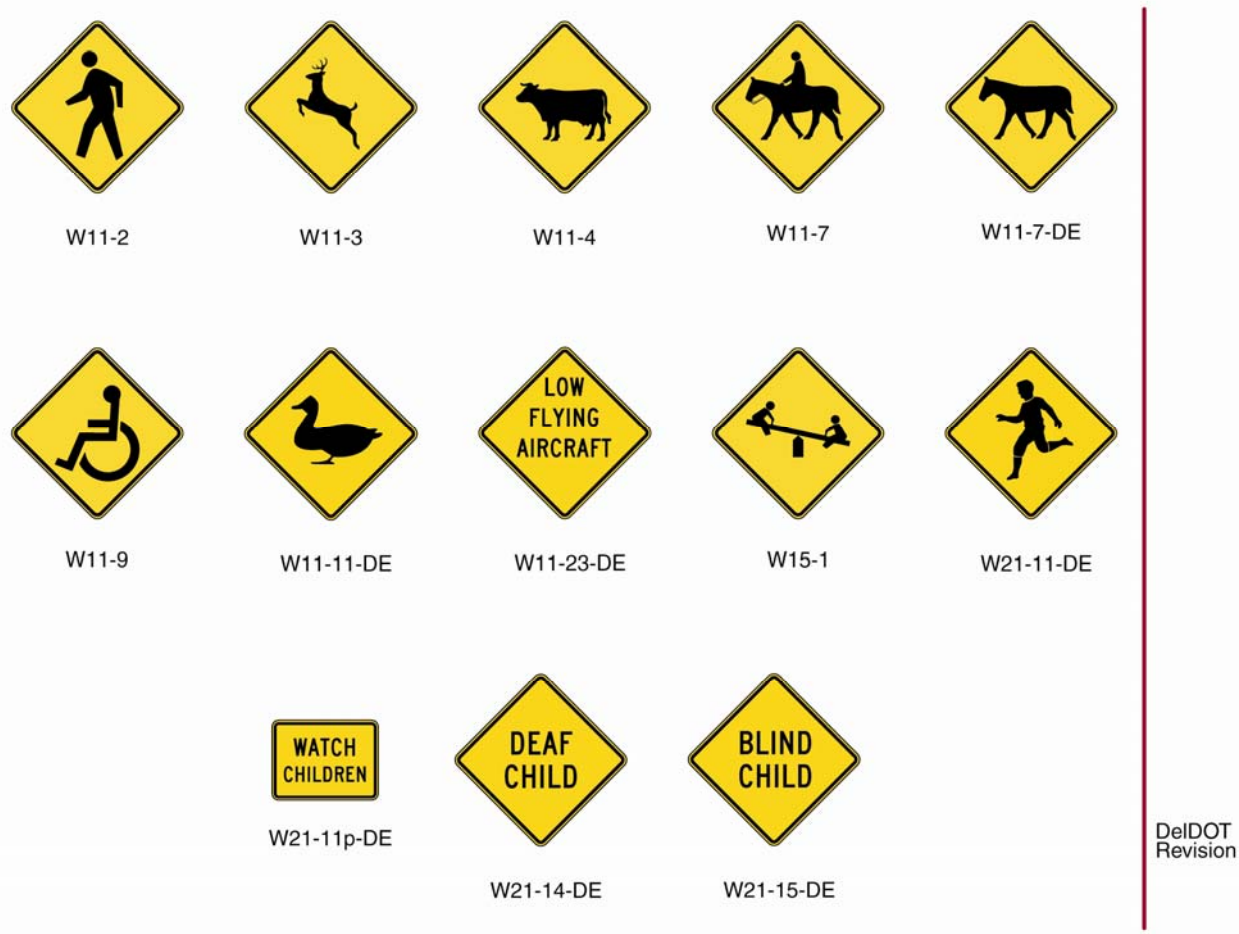
Figure 2C-10. Nonvehicular Traffic Signs



Guidance:

Nonvehicular signs should be used only at locations where the crossing activity is unexpected or at locations not readily apparent.

Section 2C.42 Playground Sign (W15-1)

Option:

The Playground (W15-1) sign (see Figure 2C-10) may be used to give advance warning of a designated children's playground that is located adjacent to the road. **DelDOT Rev.**

Guidance:

If the access to the playground area requires a roadway crossing, the application of crosswalk pavement markings (see Section 3B.17) and Nonvehicular signs (see Section 2C.41) should be considered.

Figure 2C-11. Supplemental Warning Plaques

Section 2C.43 Use of Supplemental Plaques

Option:

A supplemental plaque may be displayed with a warning sign when engineering judgment indicates that road users require additional information beyond that contained in the main message of the warning sign.

Standard:

Supplemental plaques shall be used only in combination with warning or regulatory signs. They shall not be mounted alone or displayed alone. If used, a supplemental plaque shall be installed on the same post(s) as the warning sign.

Section 2C.44 Design of Supplemental Plaques

Standard:

A supplemental plaque shall have the same color legend, border, and background as the warning sign with which it is displayed. Supplemental plaques shall be square or rectangular.

Section 2C.45 Distance Plaques (W16-2, W16-3, W16-4, W7-3a)

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Option:

The Distance Ahead (W16-2 and W16-3) plaques (see Figure 2C-11) may be used to inform the road user of the distance to the condition indicated by the warning sign.

The Next Distance (W7-3a and W16-4) plaques (see Figures 2C-2 and 2C-11) may be used to inform road users of the length of roadway over which the condition indicated by the warning sign exists.

Section 2C.46 Advisory Speed Plaque (W13-1)

Option:

The Advisory Speed (W13-1) plaque (see Figure 2C-5) may be used to supplement any warning sign to indicate the advisory speed for a condition.

Standard:

The Advisory Speed plaque shall be used where an engineering study indicates a need to advise road users of the advisory speed for a condition.

If used, the Advisory Speed plaque shall carry the message XX km/h (XX MPH). The speed shown shall be a multiple of 10 km/h or 5 mph.

Except in emergencies or when the condition is temporary, an Advisory Speed plaque shall not be installed until the advisory speed has been determined by an engineering study.

Guidance:

Because changes in conditions, such as roadway geometrics, surface characteristics, or sight distance, might affect the advisory speed, each location should be periodically evaluated and the Advisory Speed plaque changed if necessary.

Option:

The advisory speed may be the 85th-percentile speed of free-flowing traffic, the speed corresponding to a 16-degree ball bank indicator reading, or the speed otherwise determined by an engineering study because of unusual circumstances.

Support:

A 10-degree ball-bank indicator reading, formerly used in determining advisory speeds, is based on research from the 1930s. In modern vehicles, the 85th-percentile speed on curves approximates a 16-degree reading. This is the speed at which most drivers' judgment recognizes incipient instability along a ramp or curve.

Section 2C.47 Diagonal Arrow Plaque (W16-7p)

Guidance:

If the condition indicated by a warning sign is located on an intersecting road and the distance between the intersection and condition is not sufficient to provide adequate advance placement of the warning sign, a Diagonal Arrow (W16-7p) plaque (see Figure 2C-11) should be used below the warning sign.

Standard:

The Diagonal Arrow plaque (see Figure 2C-2) shall have the same legend design as the Directional Arrow auxiliary sign (see Section 2D.26) except that it shall have a black legend and border on a yellow or fluorescent yellow-green background, as appropriate.

DelDOT Rev.

Section 2C.48 Hill-Related Plaque (W7-3a)

Guidance:

On longer grades, the distance plaque (W7-3a) placed at periodic intervals of approximately 1.6 km (1 mi) spacing should be considered for use below the Hill sign (see Section 2C.12).

Section 2C.49 Advance Street Name Plaque (W16-8, W16-8a-DE)

Option:

DelDOT Rev.

An Advance Street Name (W16-8 or W16-8a-DE) plaque (see Figure 2C-11) may be used with any Intersection sign (W2 series) or Advance Traffic Control (W3 series) sign to identify the name of the intersecting street.

Section 2C.50 CROSS TRAFFIC DOES NOT STOP Plaque (W4-4p)

Option:

The CROSS TRAFFIC DOES NOT STOP (W4-4p) plaque (see Figure 2C-8) may be used in combination with a STOP sign when engineering judgment indicates that conditions are present that are causing or could cause drivers to misinterpret the intersection as an all-way stop.

Alternate messages such as TRAFFIC FROM LEFT (RIGHT) DOES NOT STOP or ONCOMING TRAFFIC DOES NOT STOP may be used on the W4-4p plaque when such messages more accurately describe the traffic controls established at the intersection.

Standard:

If the W4-4p plaque is used, it shall be installed below the STOP sign.

Section 2C.51 SHARE THE ROAD Plaque (W16-1)

Option:

In situations where there is a need to warn drivers to watch for other slower forms of transportation traveling along the highway, such as bicycles, golf carts, horse-drawn vehicles, or farm machinery, a SHARE THE ROAD (W16-1) plaque (see Figure 2C-11) may be used.

Section 2C.52 High-Occupancy Vehicle (HOV) Plaque (W16-11) (NOT APPLICABLE IN DELAWARE)

Section 2C.53 PHOTO ENFORCED Plaque (W16-10) (NOT APPLICABLE IN DELAWARE)

Section 2C.53-DE Other Supplemental Plaques (W3-9-DE, W6-3p-DE1, W16-11-DE, W21-12p-DE)

Option:

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Based upon engineering judgment, where the improvement of the conspicuity of a regulatory sign is desired, a solid yellow or fluorescent yellow Supplemental Warning (W3-9-DE) plaque (see Figure 2C-11) may be installed above the standard sign. The width of the panel should correspond to the width sign.

The ALL TRAFFIC (W6-3p-DE1) supplemental plaque (see Figure 2C-11) may be used in combination with another warning sign.

The TOLL (W16-11-DE) supplemental plaque (see Figure 2C-11) may be used in combination with a route marker or other guide sign to warn motorists of a tolled route.

The STRICTLY ENFORCED (W21-12p-DE) supplemental plaque (see Figure 2C-11) may be used in combination with a Speed Limit (R2-1) sign or other regulatory signs where additional emphasis is desirable.

CHAPTER 2D. GUIDE SIGNS—CONVENTIONAL ROADS[1]

DelDOT Rev.

Section 2D.01 Scope of Conventional Road Guide Sign Standards

Standard:

Standards for conventional road guide signs shall apply to any road or street other than low-volume roads (as defined in Section 5A.01), expressways, and freeways.

Section 2D.02 Application

Support:

Guide signs are essential to direct road users along streets and highways, to inform them of intersecting routes, to direct them to cities, towns, villages, or other important destinations, to identify nearby rivers and streams, parks, forests, and historical sites, and generally to give such information as will help them along their way in the most simple, direct manner possible.

Chapter 2A addresses placement, location, and other general criteria for signs.

Section 2D.03 Color, Retroreflection, and Illumination

Support:

Requirements for illumination, retroreflection, and color are stated under the specific headings for individual guide signs or groups of signs. General provisions are given in Sections 2A.08, 2A.09, and 2A.11.

Standard:

Except where otherwise specified herein for individual signs or groups of signs, guide signs on streets and highways shall have a white message and border on a green background. All messages, borders, and legends shall be retroreflective and all backgrounds shall be retroreflective or illuminated.

Support:

Color coding is sometimes used to help road users distinguish between multiple potentially confusing destinations. Examples of valuable uses of color coding include guide signs for roadways approaching or inside an airport property with multiple terminals serving multiple airlines, and wayfinding signs for various traffic generator destinations within a community or area.

Standard:

Different color sign backgrounds shall not be used to provide color coding of destinations. The color coding shall be accomplished by the use of different colored square or rectangular panels on the face of the guide signs.

Option:

The different colored panels may include a black or white (whichever provides the better contrast with the panel color) letter, numeral, or other appropriate designation to identify the airport terminal or other destination.

Support:

Two examples of color-coded sign assemblies are shown in Figure 2D-1.

Section 2D.04 Size of Signs

Support:

For most guide signs, the legends are so variable that a standardized size is not appropriate. The sign size is determined primarily by the length of the message, and the size of lettering and spacing necessary for proper legibility. However, for signs with standardized designs, such as route signs, it is practical to use the prescribed sizes that are given in "Standard Highway Signs" (see Section 1A.11) and/or "DelDOT Standard Signs".

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[1] Many figures that appear in this chapter are modified versions of figures that appear in the U.S. DOT MUTCD, with changes made to road, destination and route numbers to make them more Delaware-specific. These figures are intended to illustrate sign placement, sequence and sample message content, and are not necessarily representative of actual conditions that exist in Delaware.

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Option:

Reduced letter height, reduced interline spacing, and reduced edge spacing may be used on guide signs if sign size must be limited by factors such as lane width or vertical or lateral clearance.

Guidance:

Reduced spacing between the letters or words on a line of legend should not be used as a means of reducing the overall size of a guide sign, except where determined necessary by engineering judgment to meet unusual lateral space constraints. In such cases, the legibility distance of the sign legend should be the primary consideration in determining whether to reduce the spacing between the letters or the words or between the words and the sign border, or to reduce the letter height.

When a reduction in the prescribed size is necessary, the design used should be as similar as possible to the design for the standard size.

Figure 2D-1. Examples of Color-Coded Destination Guide Signs

Section 2D.05 <u>Lettering Style</u>

Standard:

The design of upper-case letters, lower-case letters, capital letters, numerals, route shields, and spacing shall be as provided in the "Standard Highway Signs" book (see Section 1A.11).

The lettering for names of places, streets, and highways on conventional road guide signs shall be a combination of lower-case letters with initial upper-case letters, or all capital letters (see Section 2A.14). When a combination of upper- and lower-case letters are used, the initial upper-case letters shall be approximately 1.33 times the "loop" height of the lower-case letters.

All other word legends on conventional road guide signs shall be in capital letters.

Section 2D.06 Size of Lettering

Support:

Sign legibility is a direct function of letter size and spacing. Legibility distance has to be sufficient to give road users enough time to read and comprehend the sign. Under optimum conditions, a guide sign message can be read and understood in a brief glance. The legibility distance includes a reasonable safety factor for inattention, blocking of view by other vehicles, unfavorable weather, inferior eyesight, or other causes for delayed or slow 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:

Design layouts for conventional road guide signs showing interline spacing, edge spacing, and other specification details shall be as shown in the "Standard Highway Signs" book (see Section 1A.11).

The principal legend on guide signs shall be in letters and numerals at least 150 mm (6 in) in height for all capital letters, or a combination of 150 mm (6 in) in height for upper-case letters with 113 mm (4.5 in) in height for lower-case letters. On low-volume roads (as defined in Section 5A.01), and on urban streets with speeds of 40 km/h (25 mph) or less, the principal legend shall be in letters at least 100 mm (4 in) in height.

Guidance:

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

The minimum lettering sizes specified herein should be exceeded where conditions indicate a need for greater legibility.

Section 2D.07 Amount of Legend

Support:

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

Guidance:

Guide signs should be limited to three lines of principal legend. Where two or more signs are included in the same overhead display, the amount of legend should be minimized. The principal legend should include only place names, route numbers, and street names.

Option:

Symbols, action information, cardinal directions, and exit numbers may be used in addition to the principal legend where sign space is available.

Section 2D.08 Arrows

Support:

Arrows are used for lane assignment and to indicate the direction toward designated routes or destinations. Figure 2D-2 shows the up-arrow and the down-arrow designs that have been approved for use on guide signs. Detailed drawings of these arrows are shown in the "Standard Highway Signs" book (see Section 1A.11).

Standard:

On overhead signs where it is desirable to indicate a lane to be followed, a down arrow shall point downward toward the 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 pointed to each lane that can be used to reach the destination shown on the sign.

Where a roadway is leaving the through lanes, an up arrow shall point upward at an angle representative of the alignment of the exit roadway.

Guidance:

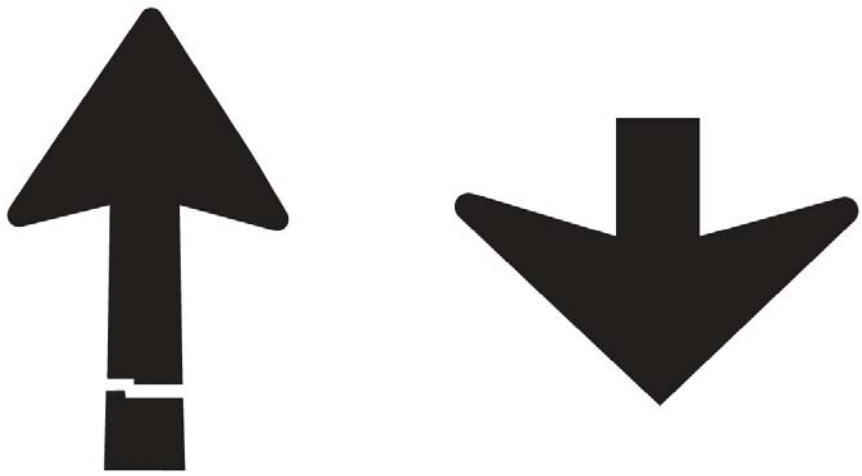
Arrows used on guide signs to indicate the directions toward designated routes or destinations should be pointed at the appropriate angle to clearly convey the direction to be taken. A horizontally oriented up-arrow design should be used at right-angle intersections.

On a ground-mounted guide sign, a directional arrow for a straight-through movement should point upward. For a turn, the arrow on a guide sign should point upward and at an angle related to the sharpness of the turn.

Option:

Arrows may be placed below the principal sign legend or on the appropriate side of the legend.

Figure 2D-2. Arrows for Use on Guide Signs



Up Arrow Down Arrow

Guidance:

At an exit, an arrow should be placed at the side of the sign which will reinforce the movement of exiting traffic. The up-arrow design should be used.

The width across the arrowhead should be at least equal to the height of the largest letter on the sign. For short downward pointing arrows on overhead signs, the width across the arrowhead should be 1.75 times the letter height.

Diagrammatic signing used on conventional roads should follow the principles set forth in Section 2E.19.

Section 2D.09 <u>Numbered Highway Systems</u>

Support:

The purpose of numbering and signing highway systems is to identify routes and facilitate travel.

The Interstate and United States (U.S.) highway systems within Delaware are numbered by the American Association of State Highway and Transportation Officials (AASHTO) upon recommendations of DelDOT. State road systems are numbered by DelDOT. **DelDOT Rev.**

The basic policy for numbering the U.S. and Interstate highway systems is contained in the following Purpose and Policy statements published by AASHTO (see Page i for AASHTO's address):

A. "Establishment and Development of United States Numbered Highways"; and
B. "Establishment of a Marking System of the Routes Comprising the National System of Interstate and Defense Highways."

Guidance:

The principles of these policies should be followed in establishing the above highway systems and any other systems. Care should be taken to avoid the use of numbers or other designations that have been assigned to Interstate, U.S., or Delaware routes in the same geographic area. Overlapping numbered routes should be kept to a minimum. **DelDOT Rev.**

Standard:

Route systems shall be given preference in this order: Interstate, United States, and Delaware. The preference shall be given by installing the highest-priority legend on the top or the left of the sign panel. DelDOT Rev.

Section 2D.10 Route Signs and Auxiliary Signs

Standard:

All numbered highway routes shall be identified by route signs and auxiliary signs.

The signs for each system of numbered highways, which are distinctive in shape and color, shall be used only on that system and the approaches thereto.

Route signs and any auxiliary signs that accompany them shall be retroreflective.

Option:

Route signs and auxiliary signs may be proportionally enlarged where greater legibility is needed.

Support:

Route signs are typically mounted in assemblies with auxiliary signs.

Section 2D.11 Design of Route Signs

Standard:

"Standard Highway Signs" (see Section 1A.11) and/or "DelDOT Standard Signs" shall be used for designing route signs. DelDOT Rev.

Interstate Route signs (see Figure 2D-3) shall consist of a cutout shield, with the route number in white letters on a blue background, the word INTERSTATE in white capital letters on a red background, and a white border. This sign shall be used on all Interstate routes and in connection with route sign assemblies on intersecting highways.

A 600 x 600 mm (24 x 24 in) minimum sign size shall be used for Interstate route numbers with one or two digits, and a 750 x 600 mm (30 x 24 in) minimum sign size shall be used for Interstate route numbers having three digits.

Standard:

U.S. Route signs (see Figure 2D-3) shall consist of black numerals on a white shield surrounded by a black background without a border. This sign shall be used on all U.S. routes and in connection with route sign assemblies on intersecting highways.

Delaware State Route signs (see Figure 2D-3) shall consist of black numerals on a white circular area surrounded by a black background without a border. This sign should be used on all Delaware State Routes and in connection with route sign assemblies on intersecting highways. DelDOT Rev.

A 600 x 600 mm (24 x 24 in) minimum sign size shall be used for U.S. and Delaware State route numbers with one or two digits, and a 750 x 600 mm (30 x 24 in) minimum sign size shall be used for route numbers having three digits.

Section 2D.12 Design of Route Sign Auxiliaries

Standard:

Route sign auxiliaries carrying word legends, except the JCT sign, shall have a standard size of 600 x 300 mm (24 x 12 in). Those carrying arrow symbols, or the JCT sign, shall have a standard size of 525 x 375 mm (21 x 15 in). All route sign auxiliaries shall match the color combination of the route sign that they supplement.

Guidance:

Auxiliary signs carrying word messages and mounted with 750 x 600 mm (30 x 24 in) Interstate Route signs should be 750 x 375 mm (30 x 15 in). With route signs of larger sizes, auxiliary signs should be suitably enlarged, but not such that they exceed the width of the route sign.

Option:

A route sign and any auxiliary signs used with it may be combined on a single panel.

Figure 2D-3. Route Signs

Interstate Route Sign
M1-1

U.S. Route Sign
M1-4

Delaware State Route Sign
M1-5

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Section 2D.13 Junction Auxiliary Sign (M2-1)

Standard:

The Junction (M2-1) auxiliary sign (see Figure 2D-4) shall carry the abbreviated legend JCT and shall be mounted at the top of an assembly (see Section 2D.27) either directly above the route sign or above a sign for an alternative route (see Section 2D.16) that is part of the route designation. The minimum size of the Junction auxiliary sign shall be 525 x 375 mm (21 x 15 in) for compatibility with auxiliary signs carrying arrow symbols.

Section 2D.14 Combination Junction Sign (M2-2)

Option:

As an alternative to the standard Junction assembly where more than one route is to be intersected or joined, a rectangular sign may be used carrying the word JUNCTION above the route numbers.

Other designs may be used to accommodate route signs. **DelDOT Rev.**

Standard:

The Combination Junction (M2-2) sign (see Figure 2D-4) shall have a green background with white border and lettering for the word JUNCTION.

Guidance:

Where U.S. or Delaware Route signs are used as components of guide signs, only the outline of the shield or other distinctive shape should be used. **DelDOT Rev.**

Although the size of the Combination Junction sign will depend on the number of routes involved, the numerals should be large enough for clear legibility and should be of a size comparable with those in the individual route signs.

Section 2D.15 Cardinal Direction Auxiliary Signs (M3-1 through M3-4)

Guidance:

Cardinal Direction auxiliary signs (see Figure 2D-4) carrying the legend NORTH, EAST, SOUTH, or WEST should be used to indicate the general direction of the entire route.

Standard:

To improve the readability, the first letter of the cardinal direction words shall be ten percent larger, rounded up to the nearest whole number size.

If used, the Cardinal Direction auxiliary sign shall be mounted directly above a route sign or an auxiliary sign for an alternative route.

Section 2D.16 Auxiliary Signs for Alternative Routes (M4 Series)

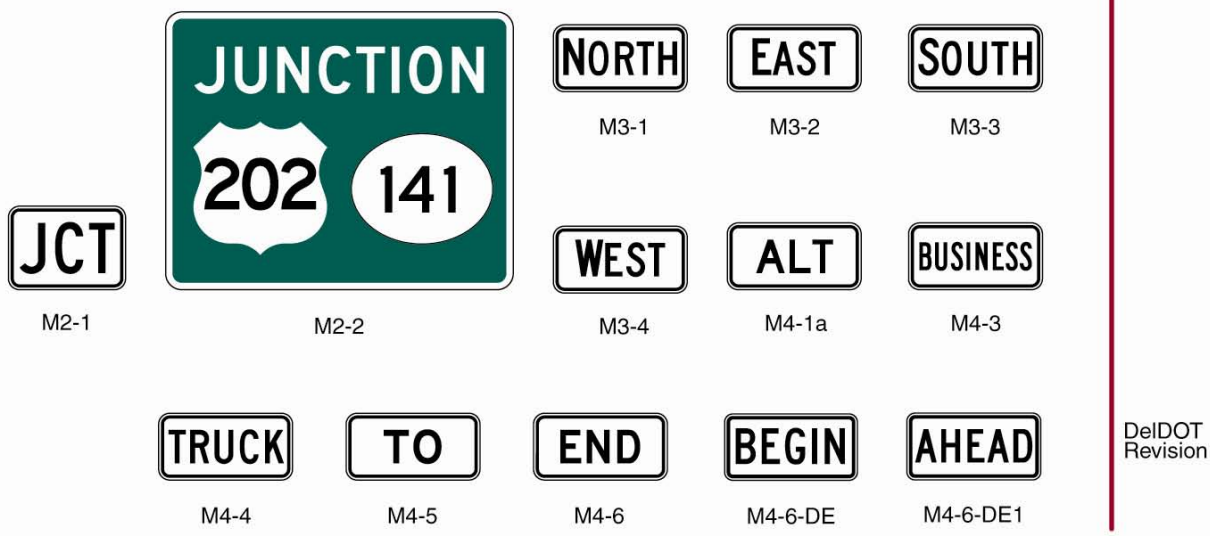
Option:

Auxiliary signs, carrying legends such as ALT, BUSINESS, or TRUCK, may be used to indicate an alternate route of the same number between two points on that route. **DelDOT Rev.**

Standard:

If used, the auxiliary signs for alternative routes shall be mounted directly above a route sign.

Figure 2D-4. Route Sign Auxiliaries



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Section 2D.17 Alternate Auxiliary Sign (M4-1a)

Option:

The ALT (M4-1a) auxiliary sign (see Figure 2D-4) may be used to indicate an officially designated alternate routing of a numbered route between two points on that route. **DelDOT Rev.**

Standard:

If used, the ALT auxiliary sign shall be mounted directly above a route sign.

Guidance:

The shorter (time or distance) or better-constructed route should retain the regular route number, and the longer or worse-constructed route should be designated as the alternate route.

Section 2D.18 BY-PASS Auxiliary Sign (M4-2) (NOT APPLICABLE IN DELAWARE) **DelDOT Rev.**

Section 2D.19 BUSINESS Auxiliary Sign (M4-3)

Option:

The BUSINESS (M4-3) auxiliary sign (see Figure 2D-4) may be used to designate an alternate route that branches from a numbered route, passes through the business portion of a City, and rejoins the numbered route beyond that area.

Standard:

If used, the BUSINESS auxiliary sign shall be mounted directly above a route sign.

Section 2D.20 TRUCK Auxiliary Sign (M4-4)

Option:

The TRUCK (M4-4) auxiliary sign (see Figure 2D-4) may be used to designate an alternate route that branches from a numbered route, when it is desirable to encourage or require commercial vehicles to use the alternate route.

Standard:

If used, the TRUCK auxiliary sign shall be mounted directly above a route sign.

Section 2D.21 TO Auxiliary Signs (M4-5)

Option:

The TO (M4-5) auxiliary sign (see Figure 2D-4) may be used to provide directional guidance to a particular road facility from other highways in the vicinity (see Section 2D.32).

Standard:

If used, the TO auxiliary sign shall be mounted directly above a route sign or an auxiliary sign for an alternative route.

Section 2D.22 END, BEGIN, AHEAD Auxiliary Signs (M4-6, M4-6-DE, M4-6-DE1)

Guidance:

The BEGIN (M4-6-DE) or END (M4-6) auxiliary signs (see Figure 2D-4) should be used where the route being traveled begins or ends, usually at a junction with another route.

The AHEAD (M4-6-DE1) auxiliary sign should be used in advance of where a route beings.

Standard: **DelDOT Rev.**

If used, the BEGIN or END auxiliary signs shall be mounted either directly above a route sign or above a sign for an alternative route that is part of the designation of the route beginning or being terminated.

Section 2D.23 TEMPORARY Auxiliary Signs (M4-7, M4-7a) (NOT APPLICABLE IN DELAWARE)

Section 2D.24 Temporary Detour and Auxiliary Signs

Support:

Chapter 6F contains information regarding Temporary Detour and Auxiliary signs.

Section 2D.25 Advance Turn Arrow Auxiliary Signs (M5-1, M5-2)

Standard:

If used, the Advance Turn Arrow auxiliary sign (see Figure 2D-5) shall be mounted directly below the route sign in Advance Route Turn assemblies, and displays a right or left arrow, the shaft of which is bent at a 90-degree angle (M5-1) or at a 45-degree angle (M5-2).

Section 2D.26 Directional Arrow Auxiliary Signs (M6 Series)

Standard:

If used, the Directional Arrow auxiliary sign (see Figure 2D-5) shall be mounted below the route sign in directional assemblies, and displays a single- or double-headed arrow pointing in the general direction that the route follows.

Section 2D.27 Route Sign Assemblies

Standard:

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.

Where two or more routes follow the same section of highway, the route signs for Interstate, U.S., and Delaware State 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. **DelDOT Rev.**

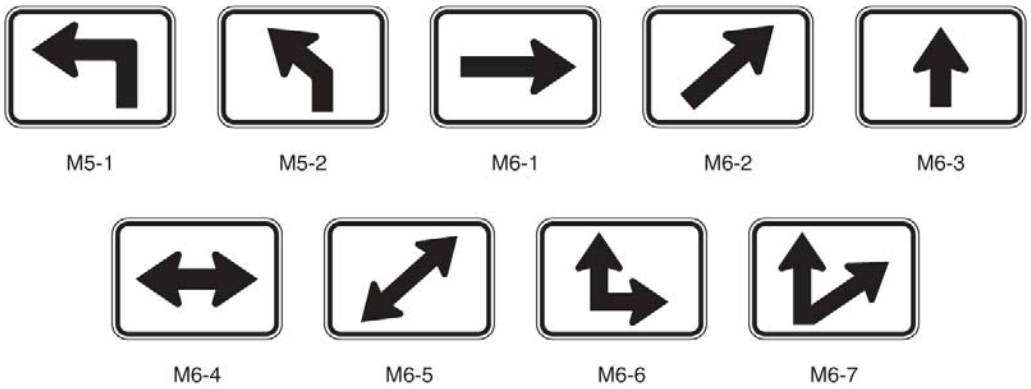
Within groups of assemblies, information for routes intersecting from the left shall be mounted at the left in horizontal arrangements and at the top or center of vertical arrangements. Similarly, information for routes intersecting from the right shall be at the right or bottom, and for straight-through routes at the center in horizontal arrangements or top in vertical arrangements.

Route Sign assemblies shall be mounted in accordance with the general specifications for highway signs (Chapter 2A), with the lowest sign in the assembly at the height prescribed for single signs.

Guidance:

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

Figure 2D-5. Directional Arrow Auxiliary Signs



Option:

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.

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:

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

Section 2D.28 <u>Junction Assembly</u>

Standard:

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.

The Junction assembly shall be installed in advance of every intersection where a numbered route is intersected or joined by another numbered route. In urban areas it shall be installed in the block preceding the intersection, and in rural areas it shall be installed at least 120 m (400 ft) in advance of the intersection. In rural areas, the minimum distance between the Destination sign and the Route Turn assembly shall be 60 m (200 ft), and the minimum distance between the Route Turn assembly and the Junction assembly shall be 60 m (200 ft).

Guidance:

In urban areas where speeds are low, the Junction assembly should not be installed more than 90 m (300 ft) in advance of the intersection.

Where prevailing speeds are high, greater spacings should be used.

Option:

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 sign (see Section 2D.14) may be used.

Section 2D.29 Advance Route Turn Assembly

Standard:

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:

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

Guidance:

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.

In low-speed areas, the Advance Route Turn assembly should be installed not less than 60 m (200 ft) in advance of the turn. In high-speed areas, the Advance Route Turn assembly should be installed not less than 90 m (300 ft) in advance of the turn.

Standard:

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:

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

Section 2D.30 Directional Assembly

Standard:

A Directional assembly shall consist of a route sign, a Directional Arrow auxiliary sign, and a Cardinal Direction auxiliary sign, if needed. The various uses of Directional assemblies shall be as outlined below:

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. The end of a route shall be marked by a Directional assembly with an END auxiliary sign and a route sign displaying the number of that route.

D. An intersected route (indicated in advance by a Junction assembly) 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.

Option:

The beginning of a route may be marked by a Directional assembly with a BEGIN auxiliary sign and a route sign displaying the number of that route. **DelDOT Rev.**

Guidance:

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 straight-through movement in the absence of other assemblies indicating right or left turns, as the Confirming assembly sign beyond the intersection normally provides adequate guidance.

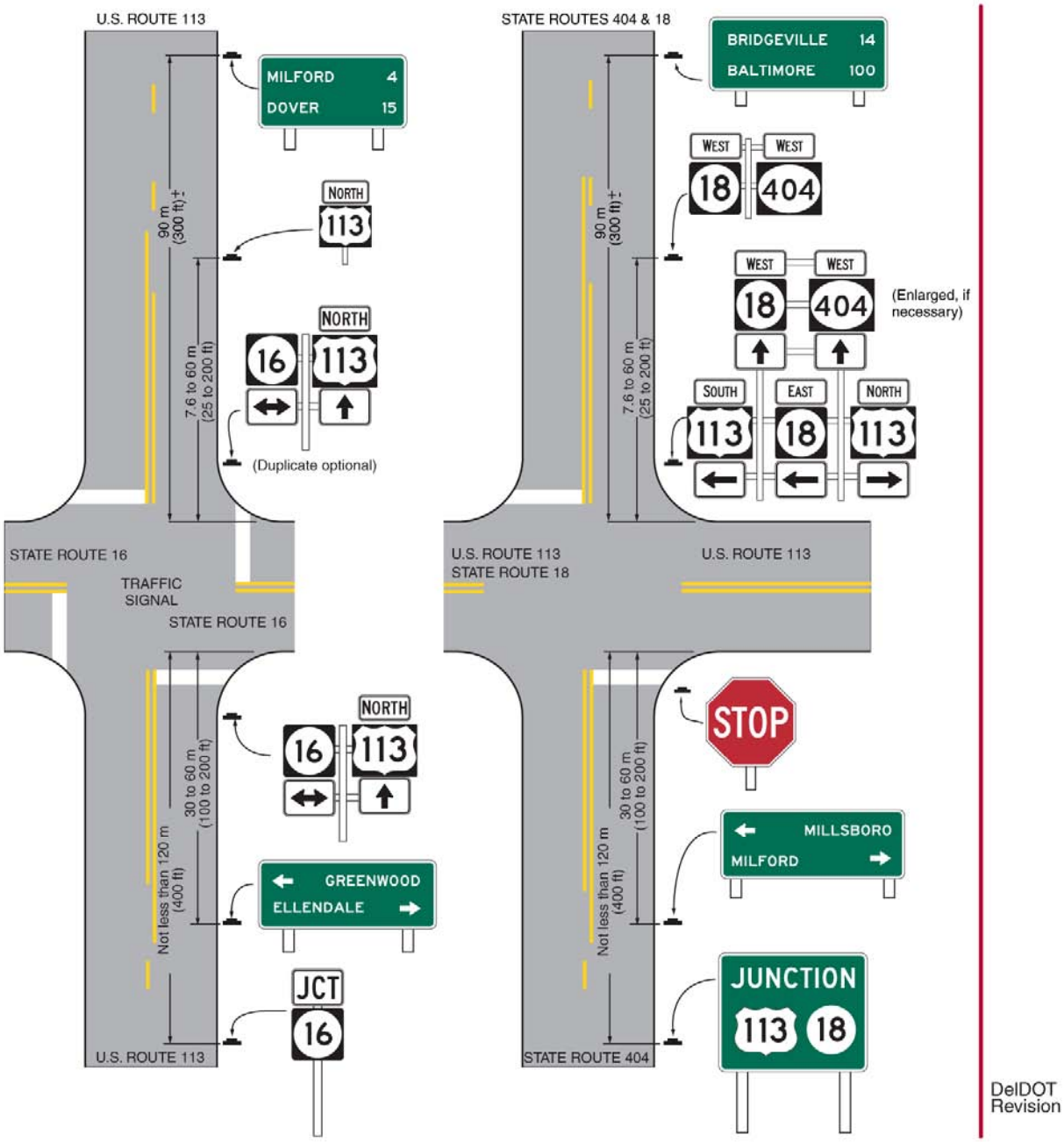
Directional assemblies should be located on the near right corner of the intersection. At major intersections and at Y or offset intersections, additional Directional assemblies should be installed on the far right or left corner to confirm the near-side assemblies. When the near-corner position is not practical for Directional assemblies, the far right corner should be the preferred alternative, with oversized signs, if necessary, for legibility. Where unusual conditions exist, the location of a Directional assembly should be determined by engineering judgment with the goal being to provide the best possible combination of view and safety.

Support:

It is more important that guide signs be readable at the right time and place than to be located with absolute uniformity.

Figure 2D-6 shows typical placements of Directional assemblies.

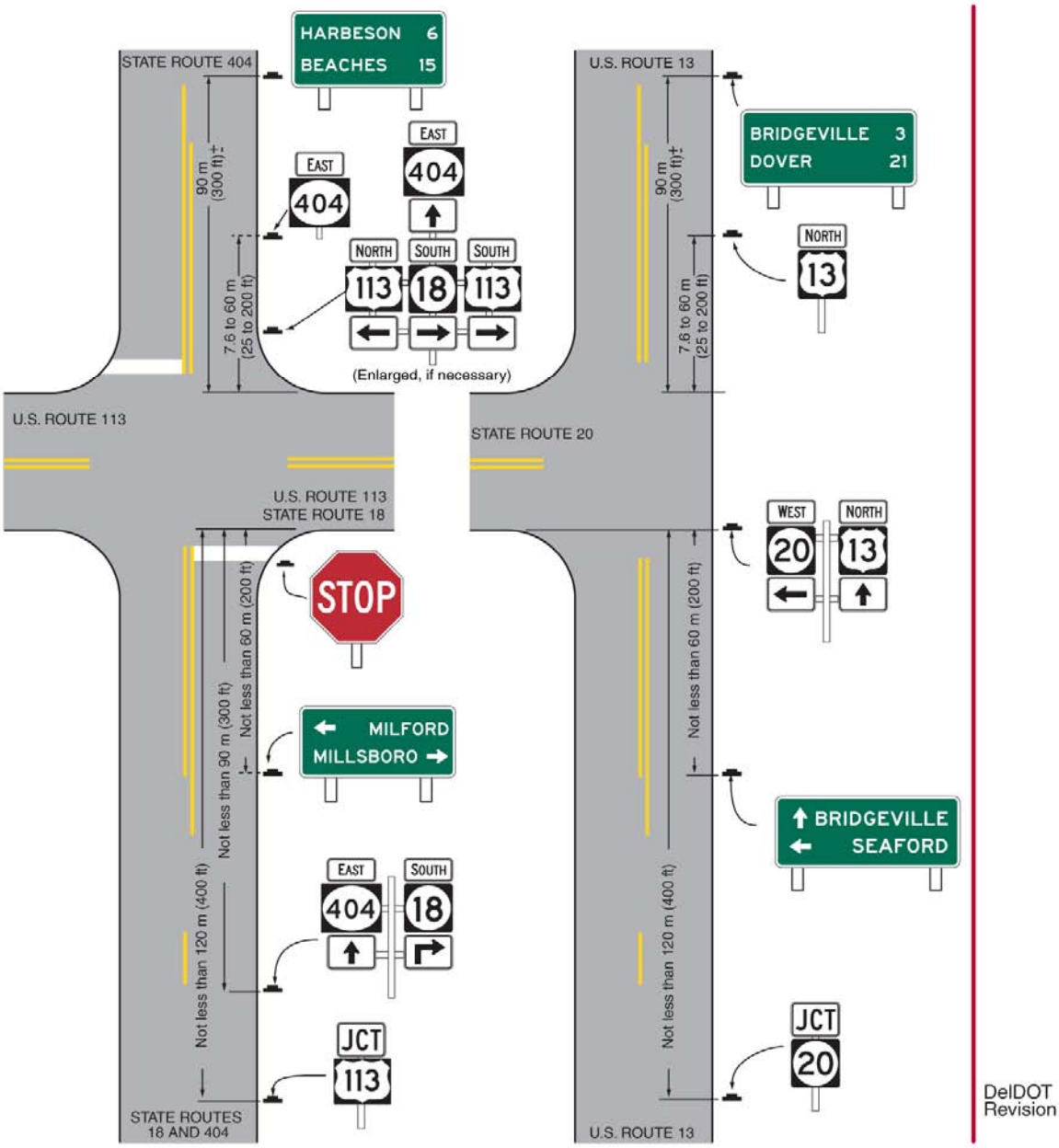
Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (For One Direction of Travel Only) *(Sheet 1 of 5)*



Notes: Lettering on Destination and Distance signs may be in all capital letters or a combination of upper-case and lower-case letters (see Section 2D.05).

See Sections 2D.28 through 2D.31 and Section 2D.35 for low-speed and/or urban conditions.

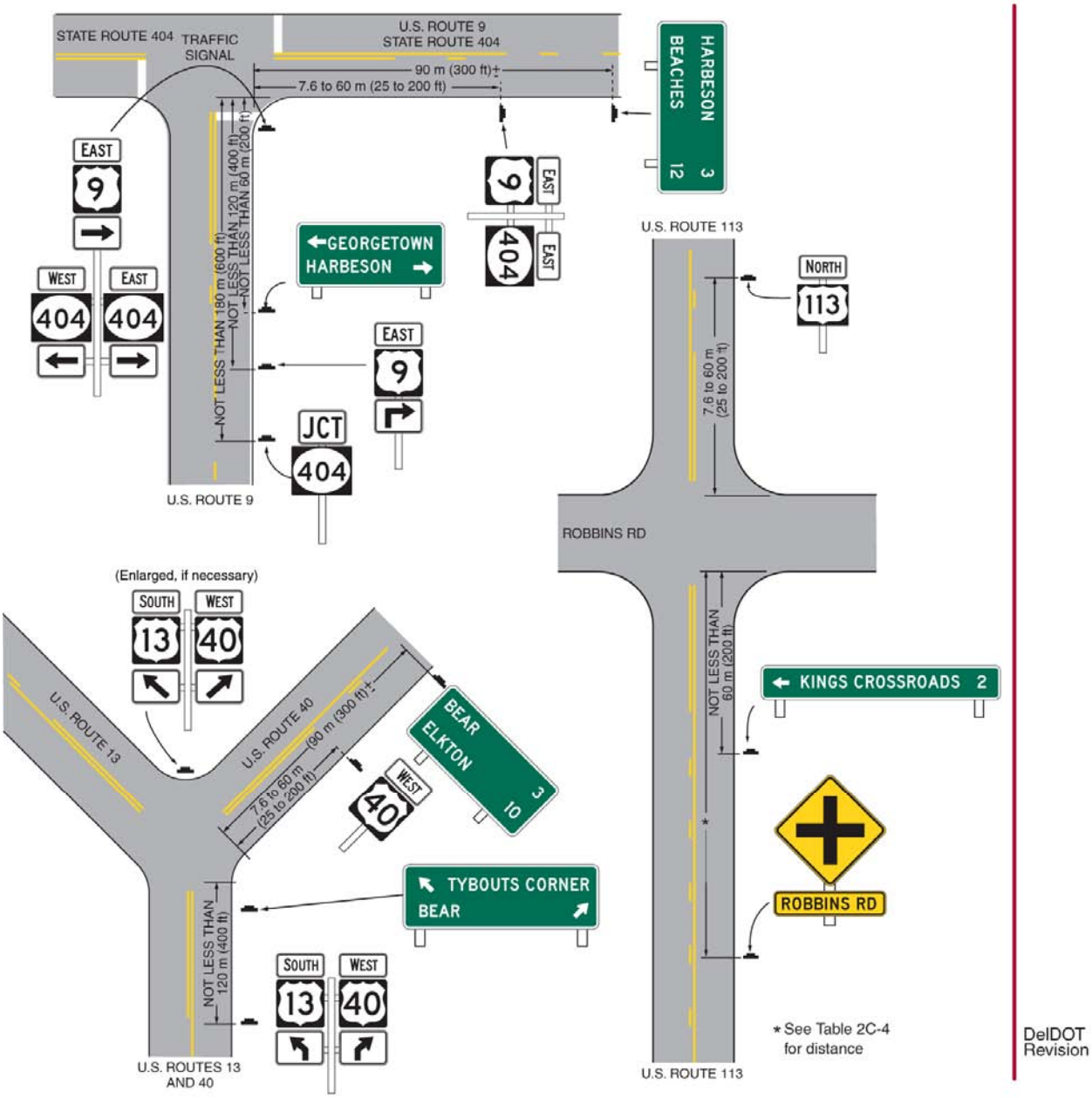
Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (For One Direction of Travel Only) *(Sheet 2 of 5)*



Notes: Lettering on Destination and Distance signs may be in all capital letters or a combination of upper-case and lower-case letters (see Section 2D.05).

See Sections 2D.28 through 2D.31 and Section 2D.35 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 5)*



Notes: Lettering on Destination and Distance signs may be in all capital letters or a combination of upper-case and lower-case letters (see Section 2D.05).

See Sections 2D.28 through 2D.31 and Section 2D.35 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 5)*

(DelDOT MUTCD Only)

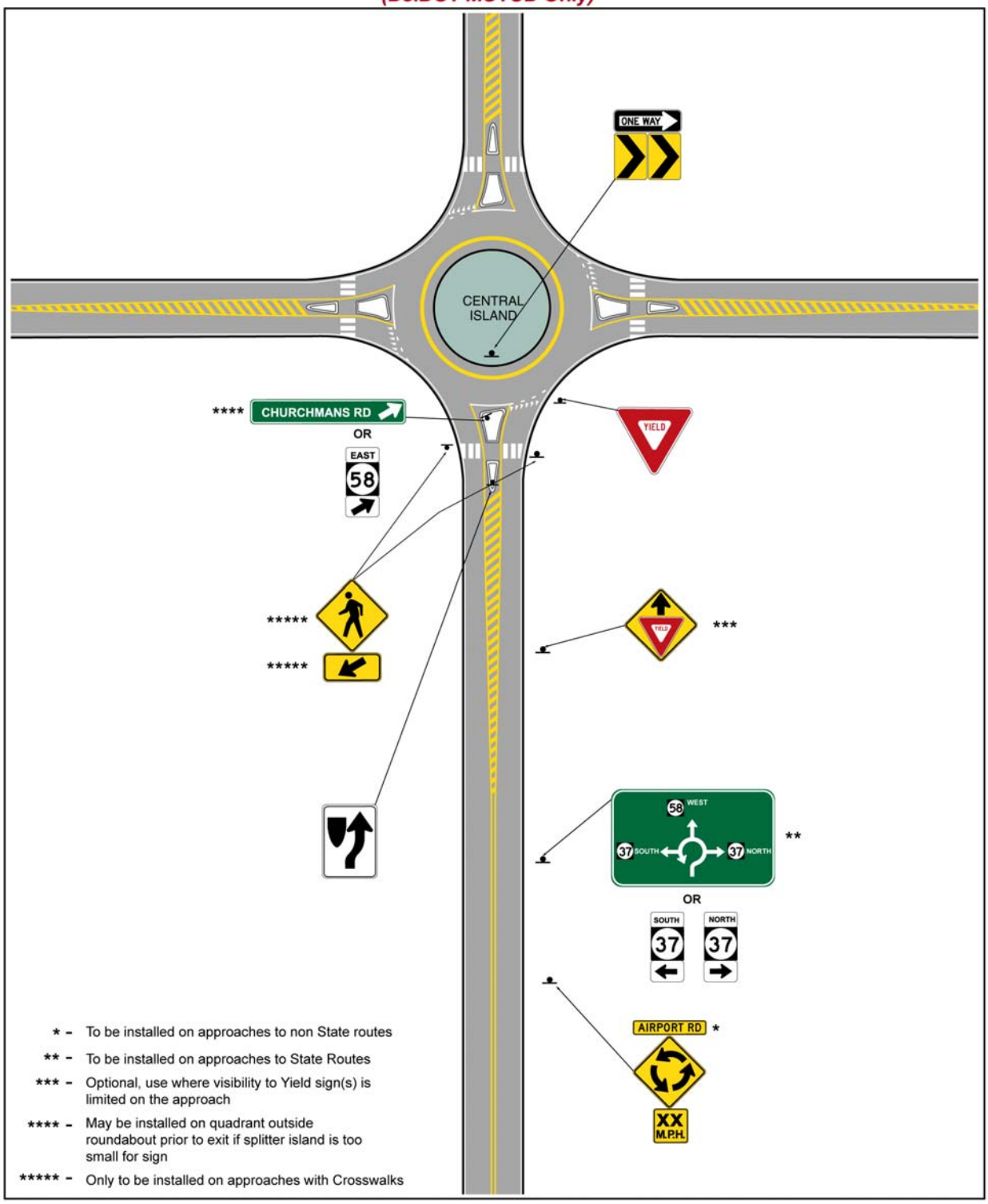
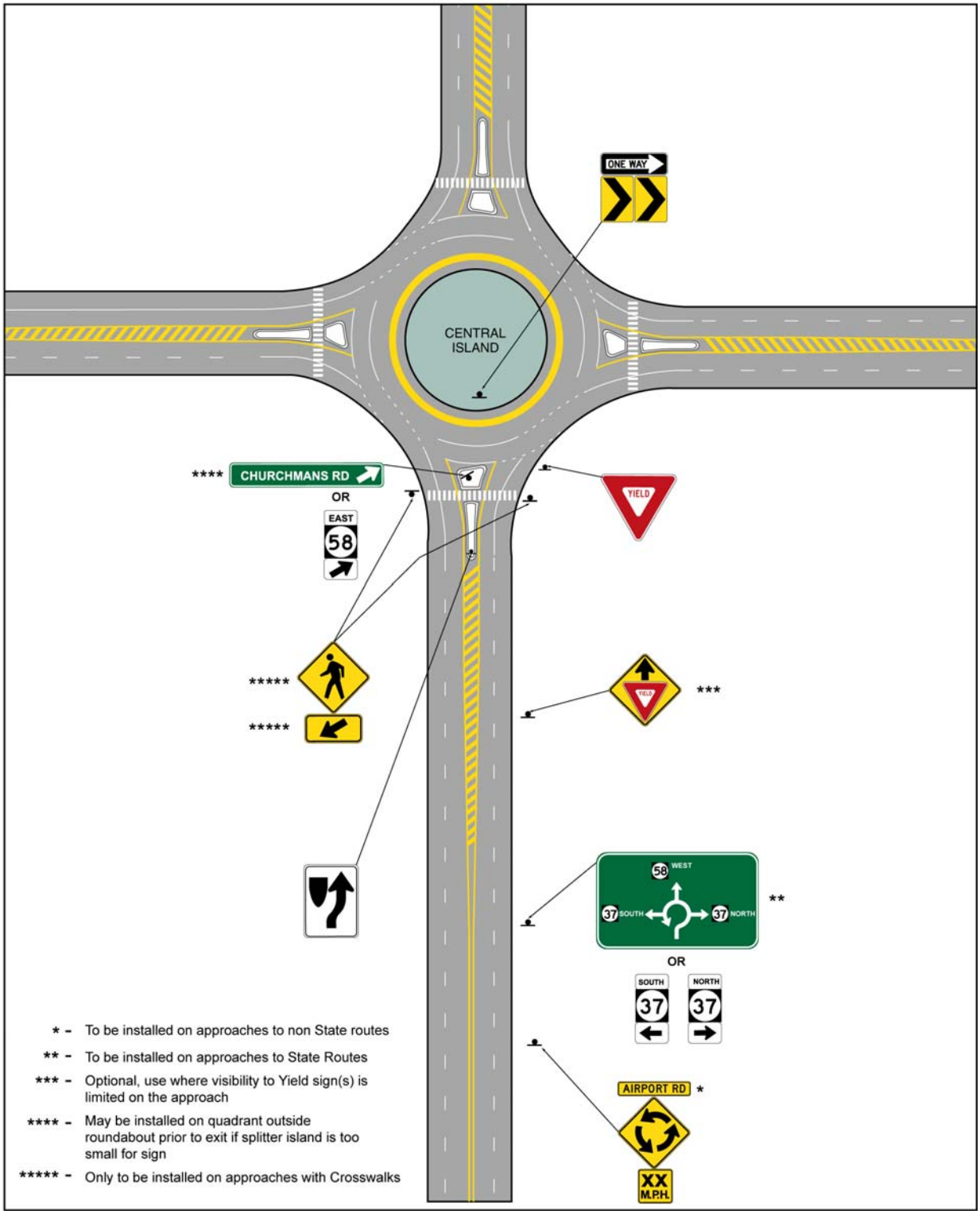


Figure 2D-6. Illustration of Directional Assemblies and Other Route Signs (For One Direction of Travel Only) *(Sheet 5 of 5)*
(DelDOT MUTCD Only)



Section 2D.31 Confirming or Reassurance Assemblies

Standard:

If used, Confirming or Reassurance assemblies shall consist of a Cardinal Direction auxiliary sign and a route sign.

Guidance:

A Confirming assembly should be installed just beyond intersections of numbered routes. It should be placed 7.6 to 60 m (25 to 200 ft) beyond the far shoulder or curb line of the intersected highway.

If used, Reassurance assemblies should be installed between intersections in urban districts as needed, and beyond the built-up area of any incorporated City or town.

Route signs for either confirming or reassurance purposes should be spaced at such intervals as necessary to keep road users informed of their routes.

Support:

Confirming and Reassurance assemblies are considered to be a type of Directional assembly.

Section 2D.32 Trailblazer Assembly

Support:

Trailblazer assemblies provide directional guidance to a particular road facility from other highways in the vicinity. This is accomplished by installing Trailblazer assemblies at strategic locations to indicate the direction to the nearest or most convenient point of access. The use of the word TO indicates that the road or street where the sign is posted is not a part of the indicated route, and that a road user is merely being directed progressively to the route.

Standard:

A Trailblazer assembly shall consist of a TO auxiliary sign, a route sign (or a special road facility symbol), and a single-headed Directional Arrow auxiliary sign pointing in the direction leading to the route.

Option:

A Cardinal Direction auxiliary sign may be used with a Trailblazer assembly.

Guidance:

The TO auxiliary sign, Cardinal Direction auxiliary sign, and Directional Arrow auxiliary sign should be of the standard size specified for auxiliary signs of their respective type. The route sign should be the size specified in Section 2D.11.

Option:

Trailblazer assemblies may be installed with other Route Sign assemblies, or alone, in the immediate vicinity of the designated facilities.

Section 2D.33 Destination and Distance Signs

Support:

In addition to guidance by route numbers, it is desirable to supply the road user information concerning the destinations that can be reached by way of numbered or unnumbered routes. This is done by means of Destination signs and Distance signs.

Option:

Route and Cardinal Direction auxiliary signs may be included on the Destination sign panel with the destinations and arrows.

Guidance:

The size of the route signs and Cardinal Direction auxiliary signs should be at least the minimum size specified for these signs.

Section 2D.34 Destination Signs (D1 Series)

Standard:

Except where special interchange signing is prescribed, the Destination (D1-1 through D1-3) sign (see Figure 2D-7), if used, shall be a horizontal rectangle carrying the name of a City, town, village, or other traffic generator, and a directional arrow.

Option:

If several destinations are to be shown at a single point, the several names may be placed on a single panel with an arrow for each name. If more than one destination lies in the same direction, a single arrow may be used for such a group of destinations.

DelDOT Rev.

Guidance:

Adequate separation should be made between any destinations or group of destinations in one direction and those in other directions by suitable design of the arrow, spacing of lines of legend, heavy lines entirely across the panel, or separate panels.

Standard:

An arrow pointing to the right shall be at the extreme right of the sign, and an arrow pointing left or up shall be at the extreme left. The distance figures, if used, shall be placed to the right of the destination names.

Guidance:

Unless a sloping arrow will convey a clearer indication of the direction to be followed, the directional arrows should be horizontal or vertical.

Guidance:

If several individual name panels are assembled into a group, all panels in the assembly should be of the same length.

Destination signs should be used:

A. At the intersections of U.S. or Delaware State numbered routes with Interstate, U.S., or Delaware State numbered routes; and
B. At points where they serve to direct traffic from U.S. or Delaware State numbered routes to the business section of towns, or to other destinations reached by unnumbered routes.

DelDOT Rev.

Standard:

Where a total of three or less destinations are provided on the Advance Guide (see Section 2E.30) and Supplemental Guide (see Section 2E.32) signs, not 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, not more than four destination names shall be used on a Destination sign.

Guidance:

If space permits, four destinations should be displayed as two separate sign panels.

Option:

Where space does not permit, or where all four destinations are in one direction, a single sign assembly may be used.

Standard:

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

Guidance:

The next 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 shown 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, there should be shown only one destination in each direction for each route.

Standard:

If there is more than one destination shown in the same direction, the name of the nearest destination shall appear above the names of any destinations that are further away.

Section 2D.35 Location of Destination Signs

Guidance:

When used in high-speed areas, Destination signs should be located 60 m (200 ft) or more in advance of the intersection, and following any Junction or Advance Route Turn assemblies that may be required.

Option:

In urban areas, shorter advance distances may be used.

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:

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

Section 2D.36 Distance Signs (D2 Series)

Standard:

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 not more than three Cities, towns, junctions, or other traffic generators, and the distance (to the nearest kilometer or mile) to those places.

Guidance:

The distance shown should be selected on a case-by-case basis by DelDOT or the jurisdiction that owns the road. 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. **DelDOT Rev.**

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 shown, the middle line should be used to indicate communities of general interest along the route or important route junctions.

Option:

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.

Guidance:

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

Option:

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.

On a route continuing into another State, destinations in the adjacent State may be shown.

Section 2D.37 Location of Distance Signs

Guidance:

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 district if it extends beyond the limits.

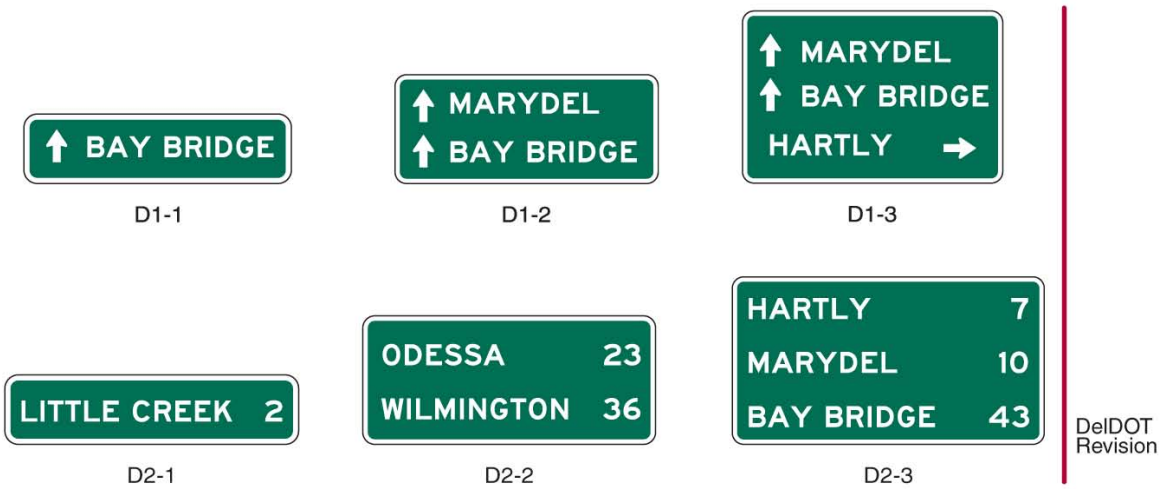
Where overlapping routes separate a short distance from the municipal limits, the Distance sign at the municipal limits should be omitted. The Distance sign should be installed approximately 90 m (300 ft) beyond the separation of the two routes.

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:

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

Figure 2D-7. Destination and Distance Signs



Section 2D.38 <u>Street Blade Signs (D3-1-DE, D3-1-DE1, D3-1-DE2, D3-1-DE3, D3-1-DE4)</u>

Guidance:

Street Blade (D3-1-DE, D3-1-DE1, D3-1-DE2, or D3-1-DE3) signs (see Figure 2D-8) should be installed in urban areas at all street intersections regardless of other route signs that may be present and should be installed in rural areas to identify important roads that are not otherwise signed.

Lettering on ground-mounted Street Blade signs should be at least 150 mm (6 in) high capital letters. **DelDOT Rev.**

Private Street Blade signs (D3-1-DE1) should be installed at intersections with private roadways.

Option:

County Road Plate (D3-1-DE4) signs (see Figure 2D-8) may be installed directly below STOP signs at unsignalized intersections.

For local roads with speed limits of 40 km/h (25 mph) or less, 6 inch Street Blade (D3-1-DE) signs may be used with a minimum lettering height of 100 mm (4 in).

Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) or the section of the City (such as NW) may be in smaller lettering, at least 75 mm (3 in) high. Conventional abbreviations (see Section 1A.14) may be used except for the street name itself.

A symbol or letter designation may be used on a Street Blade sign to identify the governmental jurisdiction, area of jurisdiction, or other government-approved institution.

Standard:

If a symbol or letter designation is used, the height and width of the symbol or letter designation shall not exceed the letter height of the sign.

Guidance:

The symbol or letter designation should be positioned to the left of the street name.

Standard:

The Street Blade sign shall be retroreflective or illuminated to show the same shape and similar color both day and night. The legend and background shall be of contrasting colors.

Guidance:

Street Blade signs should have a white legend on a green background with the exception of D3-1-DE1, which should have a green legend on a white background. A border, if used, should be the same color as the legend. **DelDOT Rev.**

In business districts and on principal arterials, Street Blade signs should be placed at least on diagonally opposite corners. In residential areas, at least one Street Blade 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.

Option:

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

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

DelDOT Rev.

Guidance:

In urban or suburban areas, especially where Advance Street Name signs are not used, the use of overhead-mounted Street Blade signs should be considered. If overhead Street Blade signs are used, the lettering should be at least 300 mm (12 in) high in capital letters, or 300 mm (12 in) upper-case letters with 225 mm (9 in) lower-case letters.

Support:

Information regarding the use of street names on supplemental plaques for use with intersection-related warning signs is contained in Section 2C.49.

Section 2D.39 Advance Street and Development Name Signs (D3-2, D3-2-DE, D3-2-DE1, D3-2-DE2, D3-2-DE3)

Support:

Advance Street Name (D3-2 and D3-2-DE) signs (see Figure 2D-8) 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.

DelDOT Rev.

Standard:

Advance Street Name (D3-2 and D3-2-DE) signs, if used, shall supplement rather than be used instead of Street Blade signs at the intersection.

Option:

Advance Street Name 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:

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.

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.

The heights of the letters on Advance Street Name signs should be the same as those used for Street Blade signs (see Section 2D.38)

DelDOT Rev.

Standard:

If used, Advance Street Name (D3-2 and D3-2-DE) signs shall have a white legend and border on a green background.

If used, Advance Street Name (D3-2) 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, or directional arrow(s) on the bottom line of the legend.

Option:

Directional arrow(s) may be placed to the right or left of the street name or message such as NEXT SIGNAL, as appropriate, rather than on the bottom line of the legend.

For intersecting crossroads where the same road has a different street name for each direction of travel, the different street names may be shown on the same Advance Street Name sign along with directional arrows.

In advance of two closely spaced intersections where it is not practical to install separate Advance Street Name signs, the Advance Street Name sign may include the street names for both intersections along with appropriate supplemental legends for both street names, such as NEXT INTERSECTION, 2ND INTERSECTION, or NEXT LEFT and NEXT RIGHT, or advance directional arrows.

An Advance Street Name (W16-8 or W16-8a-DE) plaque with black legend on a yellow background, installed supplemental to an Intersection (W2) or Advance Traffic Control (W3) series warning sign may be used instead of an Advance Street Name guide sign (see Section 2C.49).

Support:

The WELCOME TO (D3-2-DE1) and Development Name (D3-2-DE2) signs (see Figure 2D-8) identify an upcoming development entrance.

Guidance:

The WELCOME TO (D3-2-DE1) and Development Name (D3-2-DE2) signs (see Figure 2D-8) should be installed in advance of development entrances to aid unfamiliar drivers.

Development Name (Old Style) (D3-2-DE3) signs (see Figure 2D-8) are no longer used and should be replaced with WELCOME TO (D3-2-DE1) and Development Name (D3-2-DE2) signs.

Standard:

If used, the Development Name (D3-2-DE2) sign shall be installed directly below the WELCOME TO (D3-2-DE1) sign.

WELCOME TO and Development Name signs shall have a white legend and border on a blue background.

Section 2D.40 <u>Parking Area Sign (D4-1) (NOT APPLICABLE IN DELAWARE)</u> **DelDOT Rev.**

Section 2D.41 <u>PARK & RIDE and Bus Stop Signs (D4-2, D4-3-DE)</u>

Standard:

Bus Stop (DART) (D4-3-DE) signs (see Figure 2D-8) should be used to identify the locations of bus stops and the routes being served by the bus stop.

Guidance:

Bus Stop signs should be placed at the actual boarding location of the bus stop. Bus Stop signs should consist of a rectangular sign with rounded corners and a white background. A blue bus symbol, the Delaware Transit Corporation (DTC) logo, and the individual bus route numbers being served should be shown along with DTC's customer information phone number. If the number of bus routes serving the bus stop exceeds three, additional panels of rectangular boxes of the same size and color shall be attached at the bottom of the sign.

A number of jurisdictions within Delaware provide their own bus stop signs. In these cases, the individual jurisdiction must work with DTC to ensure proper signing. Signs for DTC recognized public transit services may be placed on the same post below the Bus Stop sign.

On roads where parking is permitted, no parking zones should be designated with R7 Series signs (see Section 2B.39) or other appropriate signing at bus stop locations.

Option:

PARK & RIDE (D4-2) signs (see Figure 2D-8) may be used to direct road users to park and ride facilities.

Standard:

The PARK & RIDE signs shall contain the word message PARK & RIDE and direction information (arrow or word message). **DelDOT Rev.**

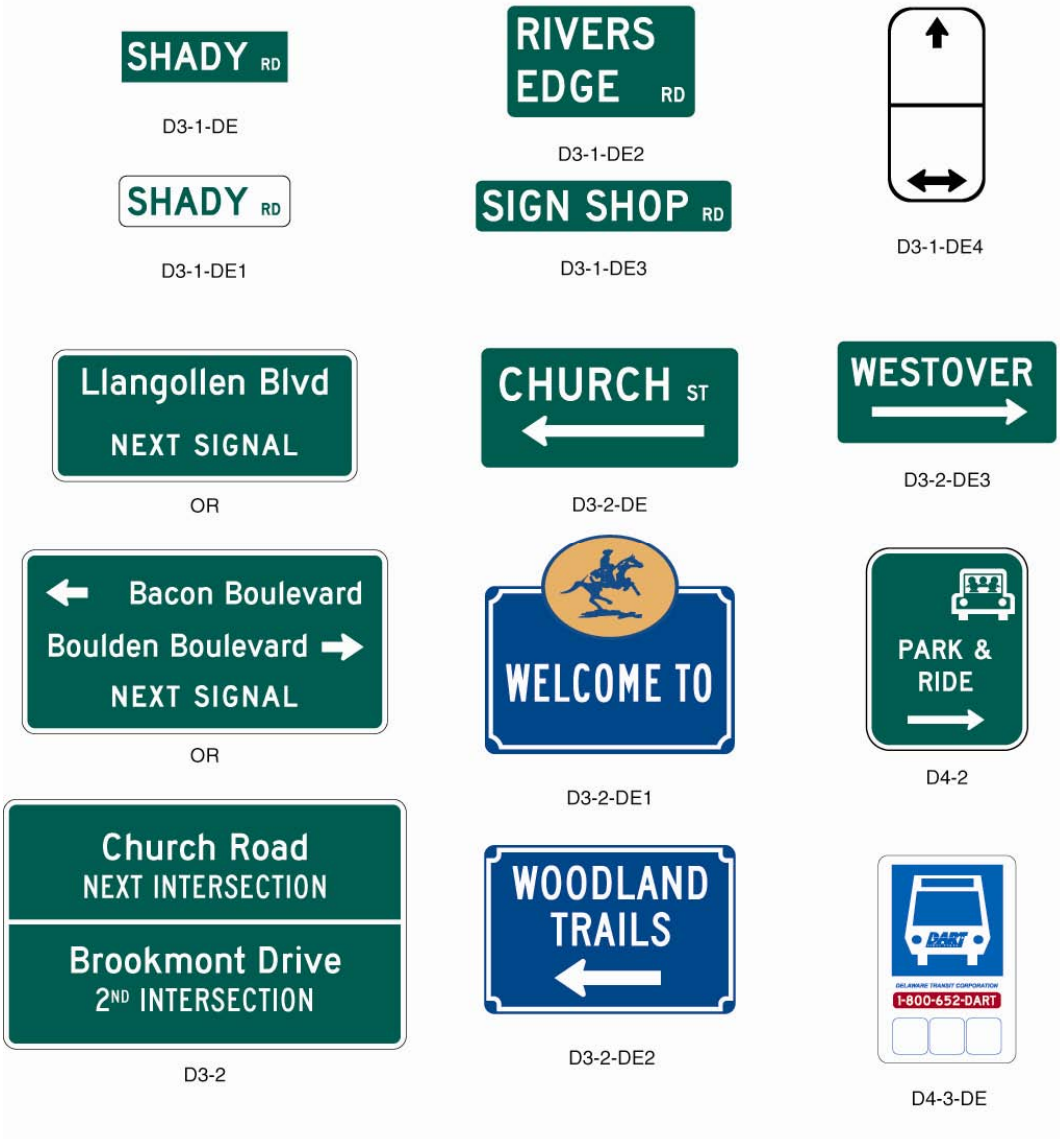
Option:

PARK & RIDE signs may contain the transit symbol and/or carpool symbol within the sign border.

Standard:

If used, the transit symbol and/or carpool symbol shall be located in the top part of the sign above the message PARK & RIDE. In no case shall the vertical dimension of the transit symbol and/or carpool symbol exceed 450 mm (18 in). **DelDOT Rev.**

Figure 2D-8. Street Name, Park and Ride and Bus Stop Signs



DelDOT Revision

Guidance:

If the function of the parking facility is to provide parking for persons using public transportation, the transit symbol should be used on the guide sign. If the function of the parking facility is to serve carpool riders, the carpool symbol should be used on the guide sign. If the parking facility serves both functions, both the logo and carpool symbols should be used.

Standard:

PARK & RIDE signs shall have a retroreflective white legend and border on a rectangular green background. The carpool symbol shall be as shown for sign D4-2. **DelDOT Rev.**

Section 2D.42 <u>Rest Area Signs (D5 Series)</u>

Standard:

Rest Area signs (see Figure 2D-9) shall be used only where parking and restroom facilities are available. Signs for this purpose shall have retroreflective white letters, symbols, and border on a blue background.

Guidance:

If used, Rest Area signs should be installed in advance of roadside parks or rest areas to permit the driver to reduce speed and leave the highway reasonably safely.

Option:

Messages such as REST AREA X km (X MILE) (D5-1) and REST AREA (D5-2) may be used, as well as other appropriate messages. **DelDOT Rev.**

Figure 2D-9. Rest Area Signs

D5-1 D5-2

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Section 2D.43 Scenic Area Signs (D6 Series)

Standard:

Scenic Area Signs are not to be used on Delaware roadways unless approved by DelDOT's Chief Traffic Engineer or a designee. **DelDOT Rev.**

Section 2D.44 Weigh Station Signing (D8 Series)

Support:

The general concept for Weigh Station signing is similar to Rest Area signing (see Section 2D.42) because in both cases traffic using either area remains within the right-of-way.

Standard:

The standard installation for Weigh Station signing shall include three basic signs:

A. Advance sign (D8-1);

B. Exit Direction sign (D8-2); and

C. Gore sign (D8-3).

Support:

Example locations of these signs are shown in Figure 2D-10.

Guidance: **DelDOT Rev.**

The Exit Direction sign (D8-2) or the Advance sign (D8-1) should display, either within the sign border or on a supplemental panel, the changeable message OPEN or CLOSED.

Section 2D.45 General Service Signs (D9 and D12 Series)

Support:

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.

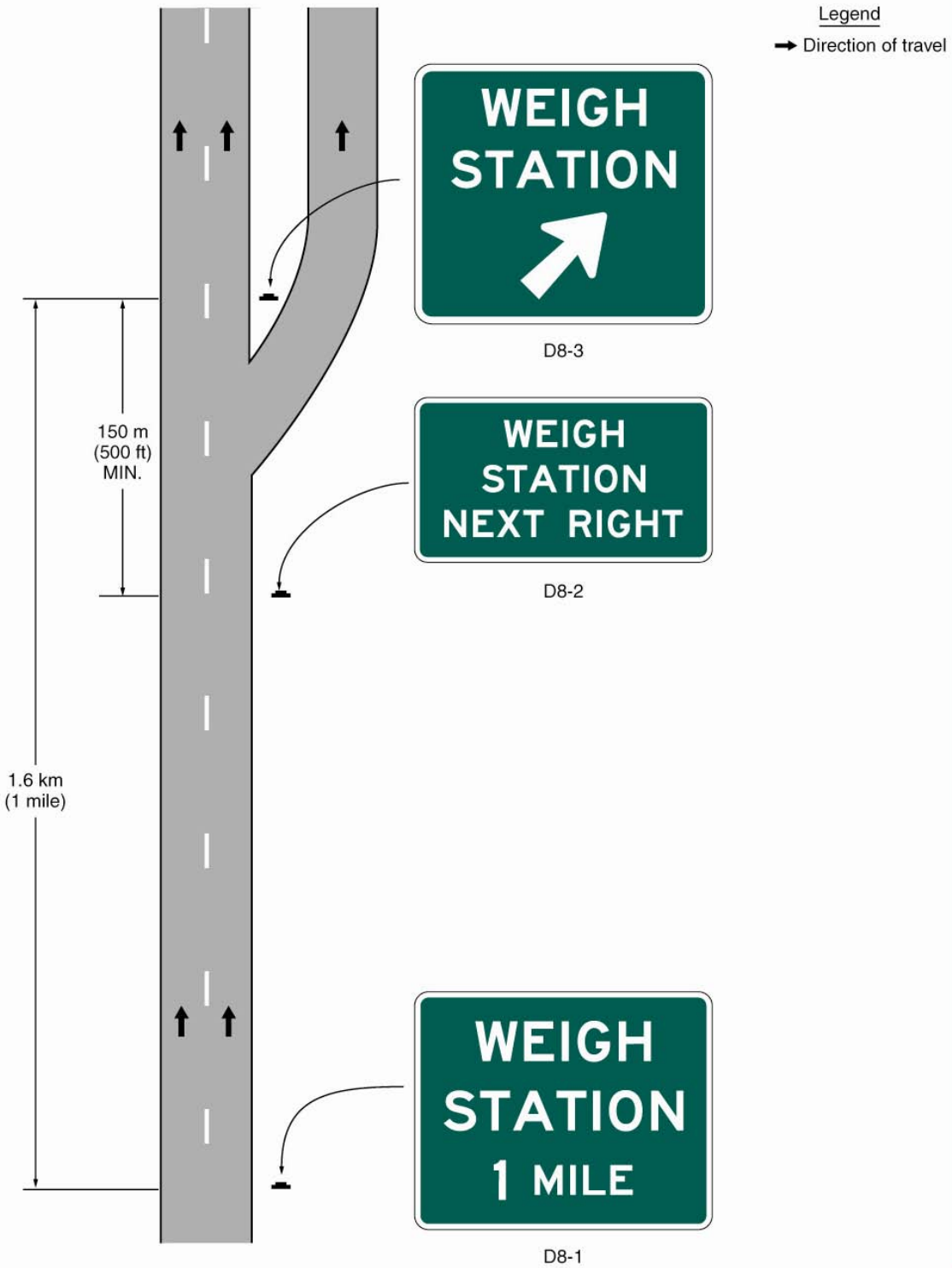
Option:

General Service signs (see Figure 2D-11) may be used where such services are infrequent and are found only on an intersecting highway or crossroad.

Standard:

All General Service signs and supplemental panels shall have white letters, symbols, and borders on a blue background.

Figure 2D-10. Example of Weigh Station Signing



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Guidance:

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

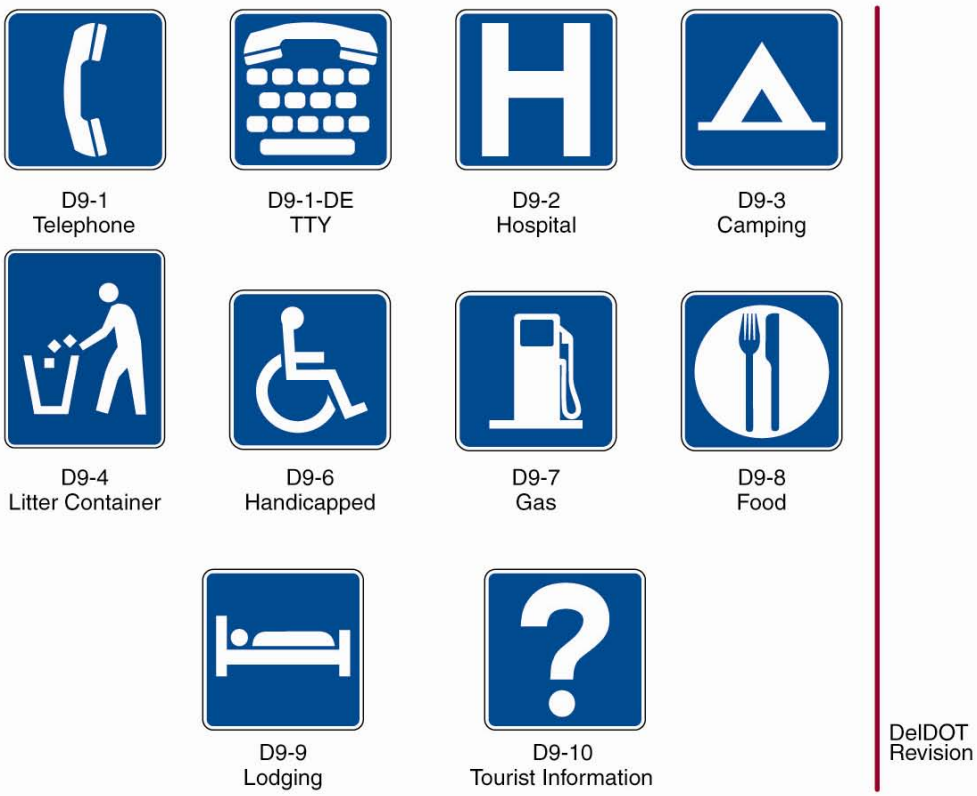
Standard:

General Service signs, if used at intersections, shall be accompanied by a directional message. DelDOT Rev.

Option:

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

Figure 2D-11. General Service Signs



Standard:

Symbols and word message General Service legends shall not be intermixed on the same sign. DelDOT Rev.

Support:

Formats for displaying different combinations of these services are presented in Section 2E.51.

Option:

If the distance to the next point at which services are available is 16 km (10 mi) or more, a sign NEXT SERVICES XX km (XX MILES) (D9-17) may be used as a separate panel installed below the General Service sign (see Figure 2E-43).

The International Symbol of Accessibility for the Handicapped (D9-6) sign may be used beneath General Service signs where paved ramps and rest room facilities accessible to, and usable by, the physically handicapped are provided.

The Litter Container (D9-4) sign may be placed in advance of roadside turnouts or rest areas, unless it distracts the driver's attention from other more important regulatory, warning, or directional signs. DelDOT Rev.

A Carpool Information (D12-2-DE) sign (see Figure 2D-12) may be installed as needed (see Section 2E.57).

A Radio Information (D-12-1-DE) sign (see Figure 2D-12) may be installed as needed (See Section 2E.56).

Section 2D.46 Reference Location Signs (D10-1 through D10-3)

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Support:

Reference Location signs (D10-1, 2, and 3) show an integer distance point along a highway.

Option:

Reference Location (D10-1 to D10-3) signs (see Figure 2D-13) may be installed along any section of a highway route or ramp to assist road users in estimating their progress, to provide a means for identifying the location of emergency incidents and traffic crashes, and to aid in highway maintenance and servicing.

Figure 2D-12. General Information Signs

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Standard:

When placed on freeways or expressways, Reference Location (D10-1 to D10-3) signs shall contain 250 mm (10 in) white numerals on a 300 mm (12 in) wide green background with a white border. The signs shall be 600, 900, or 1200 mm (24, 36, or 48 in) in height for one, two, or three digits, respectively, and shall contain the word MILE in 100 mm (4 in) white letters. **DelDOT Rev.**

When placed on conventional roads, Reference Location (D10-1 to D10-3) signs shall contain 150 mm (6 in) white numerals on a green background that is at least 250 mm (10 in) wide with a white border. The signs shall contain the word MILE in 100 mm (4 in) white letters.

The design details for reference location signs shall be as shown in "Standard Highway Signs" (see Section 1A.11) and/or "DelDOT Standard Signs".

Reference location signs shall have a minimum mounting height of 1.2 m (4 ft) to the bottom of the sign in accordance with the mounting height requirements of delineators (see Section 3D.04), and shall not be governed by the mounting height requirements prescribed in Section 2A.18.

The distance numbering shall be continuous for each route within Delaware, except where overlaps occur (see Section 2E.28). Where routes overlap, reference location sign continuity shall be established for only one of the routes. If one of the overlapping routes is an Interstate route, that route shall be selected for continuity of distance numbering. **DelDOT Rev.**

For divided highways, the distance measurement shall be made on the northbound and eastbound roadways. The reference location signs for southbound or westbound roadways shall be set at locations directly opposite the reference location signs for the northbound or eastbound roadways.

Guidance:

Zero distance should begin at the south and west Delaware State lines, or at the south and west terminus points where routes begin within Delaware. **DelDOT Rev.**

Figure 2D-13. Reference Location Signs

On a route without reference location sign continuity, the first reference location sign beyond the overlap should indicate the total distance traveled on the route so that road users will have a means of correlating their travel distance between reference location signs with that shown on their odometer.

Standard:

Except as provided in the option below, reference location signs shall be installed on the right side of the roadway.

Option:

Where conditions limit or restrict the use of reference location signs on the right side of the roadway, they may be installed in the median. On two-lane conventional roadways, reference location signs may be installed on one side of the roadway only and may be installed back-to-back. Reference location signs may be placed up to 9 m (30 ft) from the edge of the pavement.

If a reference location sign cannot be installed in the correct location, it may be moved in either direction as much as 15 m (50 ft).

Guidance:

If a reference location sign cannot be placed within 15 m (50 ft) of the correct location, it should be omitted.

Section 2D.47 Traffic Signal Speed Sign (I1-1) (NOT APPLICABLE IN DELAWARE)

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Section 2D.48 General Information Signs (I Series)

Support:

Of interest to the traveler, though not directly necessary for guidance, are numerous kinds of information that can properly be conveyed by general information signs (see Figure 2D-12). They include such items as State lines, City limits, other political boundaries, time zones, stream names, elevations, landmarks, and similar items of geographical interest, and safety and transportation-related messages. Chapter 2H contains recreational and cultural interest area symbol signs that are sometimes used in combination with general information signs.

Guidance:

General information signs should not be installed within a series of guide signs or at other equally critical locations, unless there are specific reasons for orienting the road user or identifying control points for activities that are clearly in the public interest. On all such signs, the designs should be simple and dignified, devoid of any advertising, and in general conformance with other guide signing.

Option:

An information symbol sign (I-5, I-7, I-8) may be used to identify a route leading to a transportation or general information facility, or to provide additional guidance to the facility. The symbol sign may be supplemented by an educational plaque where necessary; also, the name of the facility may be used if needed to distinguish between similar facilities.

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Guide signs for commercial service airports and noncarrier airports may be provided from the nearest Interstate, other freeway, or conventional highway intersection directly to the airport, normally not to exceed 25 km (15 mi). The Airport (I-5) symbol sign along with a supplemental plaque may be used to indicate the specific name of the airport. An Airport symbol sign, with or without a supplemental name plaque or the word AIRPORT, and an arrow may be used as a trailblazer.

Standard:

Adequate trailblazer signs shall be in place prior to installing the airport guide signs.

Support:

Location and placement of all airport guide signs depends upon the availability of longitudinal spacing on highways.

Standard:

When a sign is used to display a safety or transportation-related message, the display format shall not be of a type that would be considered similar to advertising displays. Messages and symbols that resemble any official traffic control device shall not be used on safety or transportation-related message signs.

Option:

The Town Name (I-2-DE) sign, ENTERING CORPORATE LIMITS (I-2) sign or NOW LEAVING CORPORATE (I-2-DE2) sign may be used at political boundaries. **DelDOT Rev.**

Political jurisdiction logos may be placed on the political boundary general information signs. The logo may have different colors and shapes but should be simple, dignified, and devoid of any advertising.

Option:

Adopt a Highway (AAH-1-DE, AAH-2-DE) signs (see Figure 2D-12) may be installed to recognize a business or a volunteer group that participates in DelDOT's litter removal program. Adopt a Highway signs may be installed at the beginning and end of the adopted section.

Standard:

Adopt a Highway signs are the lowest priority of information-type signs and shall only be placed where adequate spacing between higher priority signs is available. In no case shall the Adopt a Highway signs be placed such that it obscures road users' view of other traffic control devices. **DelDOT Rev.**

Standard:

Except for political boundary, Adopt A Highway signs, the Delaware Logo, and Delaware Scenic and Historic Highway signs, general information signs shall have white legends and borders on green rectangular-shaped backgrounds.

Section 2D.49 <u>Signing of Named Highways</u>

Support:

Legislative bodies will occasionally adopt an act or resolution memorializing a highway, bridge, or other component of the highway.

Guidance:

Such memorial names should not appear on or along a highway, or be placed on bridges or other highway components. The requirement for signing should be carried out by placing a memorial plaque in a rest area, scenic overlook, recreational area, or other appropriate location where parking is provided with the signing inconspicuously located relative to vehicle operations along the highway.

Option:

If the installation of a memorial plaque off the main roadway is not practical, memorial signs may be installed on the mainline.

Standard:

Where such memorial signs are installed on the mainline, (1) memorial names shall not appear on directional guide signs, (2) memorial signs shall not interfere with the placement of any other necessary highway signing, and (3) memorial signs shall not compromise the safety or efficiency of traffic flow. The memorial signing shall be limited to one sign at an appropriate location in each route direction.

Option:

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:

Highway names shall not replace official numeral designations. Memorial names shall not appear on supplemental signs or on any other information sign either on or along the highway or its intersecting routes.

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:

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:

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

Section 2D.50 Trail Signs

Support:

Trail signs are informational signs, plaques, or shields designed to provide road users with route guidance in following a trail of particular cultural, historical, or educational significance.

Guidance:

Primary guidance should be in the form of printed literature and strip maps rather than trail signing.

Option:

Trail signs may be installed on a highway if they have been approved by the appropriate transportation agency.

Section 2D.51 Crossover Signs (D13 Series) (NOT APPLICABLE IN DELAWARE)

Section 2D.52 Delaware Scenic and Historic Highways Signs

Support:

Delaware has designated certain roadways as Scenic and Historic Highways that have particular intrinsic scenic, historic, natural, cultural, recreational or archaeological qualities.

Option:

The Delaware Scenic and Historic Highways Sign (D6-4-DE) sign (see Figure 2D-14) may be installed at entrance and end points to a route that has been recognized as a Delaware Scenic and Historic Highway. The Delaware Scenic and Historic Highways sign may also be installed at periodic intervals along the designated route and at intersections where the designated route turns or follows a different highway. At locations where roadside features have been developed to enhance the traveler's experience such as rest areas, historic sites, interpretive facilities, or scenic overlooks, the Delaware Scenic and Historic Highways sign may be placed on the associated sign assembly to inform travelers that the site contributes to the byway travel experience. **DelDOT Rev.**

Figure 2D-14. Examples of Use of the Delaware Scenic and Historic Highway Signs

CHAPTER 2E. GUIDE SIGNS—FREEWAYS AND EXPRESSWAYS[1]

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Section 2E.01 Scope of Freeway and Expressway Guide Sign Standards

Support:

These standards provide a uniform and effective system of highway signing for high-volume, high-speed motor vehicle traffic on freeways and expressways. The requirements and specifications for expressway signing exceed those for conventional roads (see Chapter 2D), but are less than those for freeway signing. Since there are many geometric design variables to be found in existing roads, a signing concept commensurate with prevailing conditions is the primary consideration. Section 2A.01 includes definitions of freeway and expressway.

Guide signs for freeways and expressways are primarily identified by the name of the sign rather than by an assigned sign code. Guidelines for the design of guide signs for freeways and expressways are provided in Chapter 8 (Design Guidelines) of "Standard Highway Signs" (see Section 1A.11).

Standard:

The standards prescribed herein for freeway or expressway guide signing shall apply to any highway that meets the definition of such facilities.

Section 2E.02 Freeway and Expressway Signing Principles

Support:

The development of a signing system for freeways and expressways is approached on the premise that the signing is primarily for the benefit and direction of road users who are not familiar with the route or area. The signing furnishes road users with clear instructions for orderly progress to their destinations. Sign installations are an integral part of the facility and, as such, are best planned concurrently with the development of highway location and geometric design. For optimal results, plans for signing are analyzed during the earliest stages of preliminary design, and details are correlated as final design is developed. The excessive signing found on many major highways usually is the result of using a multitude of signs that are too small and that are poorly designed and placed to accomplish the intended purpose.

Freeway and expressway signing is to be considered and developed as a planned system of installations. An engineering study is sometimes necessary for proper solution of the problems of many individual locations, but, in addition, consideration of an entire route is necessary.

Guidance:

Road users should be guided with consistent signing on the approaches to interchanges, when they drive from one State to another, and when driving through rural or urban areas. Because geographical, geometric, and operating factors regularly create significant differences between urban and rural conditions, the signing should take these conditions into account.

Guide signs on freeways and expressways should serve distinct functions as follows:

A. Give directions to destinations, or to streets or highway routes, at intersections or interchanges;
B. Furnish advance notice of the approach to intersections or interchanges;
C. Direct road users into appropriate lanes in advance of diverging or merging movements;
D. Identify routes and directions on those routes;
E. Show distances to destinations;
F. Indicate access to general motorist services, rest, scenic, and recreational areas; and
G. Provide other information of value to the road user.

[1] Many figures that appear in this chapter are modified versions of figures that appear in the U.S. DOT MUTCD, with changes made to road, destination and route numbers to make them more Delaware-specific. These figures are intended to illustrate sign placement, sequence and sample message content, and are not necessarily representative of actual conditions that exist in Delaware.

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Section 2E.03 General

Support:

Signs are designed so that they are legible to road users approaching them and readable in time to permit proper responses. Desired design characteristics include: (a) long visibility distances, (b) large lettering and symbols, and (c) short legends for quick comprehension.

Standard:

Standard shapes and colors shall be used so that traffic signs can be promptly recognized by road users.

Section 2E.04 Color of Guide Signs

Standard:

Guide signs on freeways and expressways, except as noted herein, shall have white letters, symbols, and borders on a green background.

Support:

Color requirements for route signs and trailblazers, signs with blank-out or changeable messages, signs for services, park and recreational areas, and for certain miscellaneous signs are specified in the individual sections dealing with the particular sign or sign group.

Section 2E.05 Retroreflection or Illumination

Standard:

Letters, numerals, symbols, and borders of all guide signs shall be retroreflectorized. The background of all guide signs that are not independently illuminated shall be retroreflective.

Support:

Where there is no serious interference from extraneous light sources, retroreflectorized ground-mounted signs usually provide adequate nighttime visibility.

On freeways and expressways where much driving at night is done with low-beam headlights, the amount of headlight illumination incident to an overhead sign display is relatively small.

Guidance:

Overhead sign installations should be illuminated unless an engineering study shows that retroreflectorization alone will perform effectively. The type of illumination chosen should provide effective and reasonably uniform illumination of the sign face and message.

Section 2E.06 Characteristics of Urban Signing

Support:

Urban conditions are characterized not so much by City limits or other arbitrary boundaries, as by the following features:

A. Mainline roadways with more than two lanes in each direction;
B. High traffic volumes on the through roadways;
C. High volumes of traffic entering and leaving interchanges;
D. Interchanges closely spaced;
E. Roadway and interchange lighting;
F. Three or more interchanges serving the major City;
G. A loop or spur serving a sizable portion of the urban population; and **DelDOT Rev.**
H. Visual clutter from roadside development.

Operating conditions and road geometrics on urban freeways and expressways usually make special sign treatments desirable, including:

A. Use of Interchange Sequence signs (see Section 2E.37);
B. Use of sign spreading to the maximum extent possible (see Section 2E.10);
C. Elimination of service signing (see Section 2E.51);
D. Reduction to a minimum of post-interchange signs (see Section 2E.35);
E. Display of advance signs at distances closer to the interchange, with appropriate adjustments in the legend (see Section 2E.30);
F. Use of overhead signs on roadway structures and independent sign supports (see Section 2E.22);

G. Use of diagrammatic signs in advance of intersections and interchanges (see Section 2E.19); and
H. Frequent use of street names as the principal message in guide signs.

Lower speeds which are often characteristic of urban operations do not justify lower signing standards. Typical traffic patterns are more complex for the road user to negotiate, and large, easy-to-read legends are, therefore, just as necessary as on rural highways.

Section 2E.07 Characteristics of Rural Signing

Support:

Rural areas ordinarily have greater distances between interchanges, which permits adequate spacing for the sequences of signs on the approach to and departure from each interchange. However, the absence of traffic in adjoining lanes and on entering or exiting ramps often adds monotony or inattention to rural driving. This increases the importance of signs that call for decisions or actions.

Guidance:

Where there are long distances between interchanges and the alignment is relatively unchanging, signs should be positioned for their best effect on road users. The tendency to group all signing in the immediate vicinity of rural interchanges should be avoided by considering the entire route in the development of sign plans. Extra effort should be given to the placement of signs at natural target locations to command the attention of the road user, particularly when the message requires an action by the road user.

Section 2E.08 Memorial Highway Signing

Guidance:

Freeways and expressways should not be signed as memorial highways. If a route, bridge, or highway component is officially designated as a memorial, and if notification of the memorial is to be made on the highway right-of-way, such notification should consist of installing a memorial plaque in a rest area, scenic overlook, recreational area, or other appropriate location where parking is provided with the signing inconspicuously located relative to vehicle operations along the highway.

Option:

If the installation of a memorial plaque off the main roadway is not practical, a memorial sign may be installed on the mainline.

Standard:

Where such memorial signs are installed on the mainline, (1) memorial names shall not appear on directional guide signs, (2) memorial signs shall not interfere with the placement of any other necessary highway signing, and (3) memorial signs shall not compromise the safety or efficiency of traffic flow. The memorial signing shall be limited to one sign at an appropriate location in each route direction.

Section 2E.09 Amount of Legend on Guide Signs

Guidance:

No more than two destination names or street names should be shown on any Advance Guide sign or Exit Direction sign. A City name and street name on the same sign should be avoided. Where two or three signs are placed on the same supports, destinations or names should be limited to one per sign, or to a total of three in the display. Sign legends should not exceed three lines of copy.

Option:

Sign legends may include symbols, route numbers, arrows, cardinal directions, and exit instructions.

Section 2E.10 Number of Signs at an Overhead Installation and Sign Spreading

Guidance:

If overhead signs are warranted, as set forth in Section 2A.17, the number of signs at these locations should be limited to only those essential in communicating pertinent destination information to the road user. Exit Direction signs for a single exit and the Advance Guide signs should have only one panel with one or two destinations. Regulatory signs, such as speed limits, should not be used in conjunction with overhead guide sign installations. Because road users have limited time to read and comprehend sign

messages, there should not be more than three guide signs displayed at any one location either on the overhead structure or its support.

Option:

At overhead locations, more than one sign may be installed to advise of a multiple exit condition at an interchange. If the roadway ramp or crossing roadway has complex or unusual geometrics, additional signs with confirming messages may be provided to properly guide the road user.

Support:

Sign spreading is a concept where major overhead signs are spaced so that road users are not overloaded with a group of signs at a single location. Figure 2E-1 illustrates an example of sign spreading.

Guidance:

Where overhead signing is used, sign spreading should be used at all single exit interchanges and to the extent possible at multi-exit interchanges. Sign spreading should be accomplished by use of the following:

A. The Exit Direction sign should be the only sign used in the vicinity of the gore (other than the Gore sign). It should be located overhead near the theoretical gore and generally on an overhead sign support structure.
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.

Section 2E.11 Pull-Through Signs

Support:

Pull-Through signs (see Figure 2E-2) are overhead lane use signs intended for through traffic.

Guidance:

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.

Section 2E.12 Designation of Destinations

Standard:

The direction of a freeway and the major destinations or control cities (see Section 2D.34) along it shall be clearly identified through the use of appropriate destination legends. 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:

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.

Support:

Continuity of destination names is also useful on expressways serving long-distance or intrastate travel.

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 DelDOT and are contained in the “List of Control Cities for Use in Guide Signs on Interstate Highways,” published and available from American Association of State and Highway Transportation Officials (see Page i for AASHTO’s address).

Figure 2E-1. Example of Guide Sign Spreading

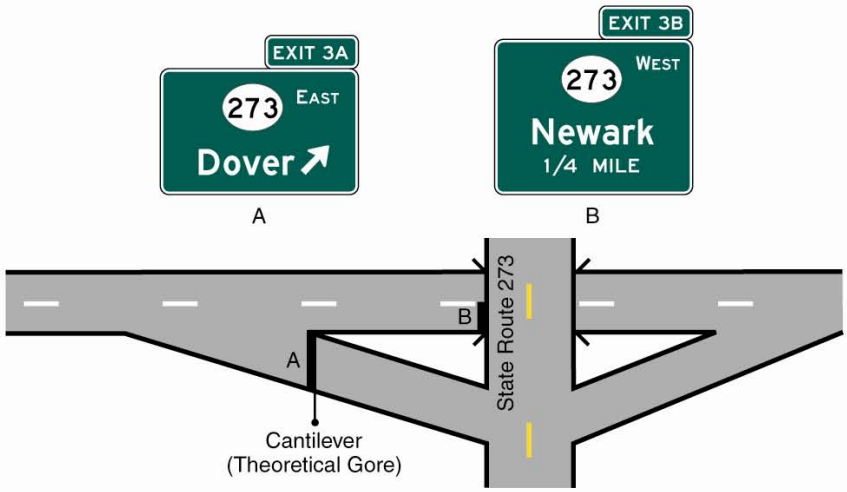

Figure 2E-2. Pull-Through Signs

E6-2

E6-2a

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Section 2E.13 <u>Size and Style of Letters and Signs</u>

Standard:

With all freeway and expressway signs, the message dimensions shall be determined first, and the outside sign dimensions secondarily. Word messages in the legend of expressway guide signs shall be in letters at least 200 mm (8 in) 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 expressway guide signs according to interchange classification, type of sign and component of sign legend are shown in Tables 2E-1 and 2E-2. Minimum numeral and letter sizes for freeway guide signs, according to interchange classification, type of sign, and component of sign legend, appear in Tables 2E-3 and 2E-4. 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 Series E(M) of "Standard Highway Signs" (see Section 1A.11). Other word legends shall be in capital letters. Interline and edge spacing shall be as specified in Section 2E.14.

Lettering size on freeway and expressway signs shall be the same for both rural and urban conditions.

Support:

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.

Designs for upper-case, lower-case, and capital alphabets together with tables of recommended letter spacing, are shown in "Standard Highway Signs".

Guidance:

Where upper- and lower-case lettering is used, the initial upper-case letters should be approximately 1.33 times the "loop" height of the lower-case letters. Freeway lettering sizes (see Tables 2E-3 and 2E-4) should be used when expressway geometric design is comparable to freeway standards.

Other sign letter size requirements not specifically identified elsewhere in this Manual should be guided by these specifications. Abbreviations should be kept to a minimum.

Support:

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.14 Interline and Edge Spacing

Guidance:

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

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.15 Sign Borders

Standard:

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.

Guidance:

For guide signs larger than 3000 x 1800 mm (120 x 72 in), the border should have a width of 50 mm (2 in). For smaller guide signs, a border width of 31 mm (1.25 in) should be used, but the width should not exceed the stroke width of the major lettering on the sign.

Corner radii of sign borders should be one-eighth of the minimum sign dimension on guide signs, except that the radii should not exceed 300 mm (12 in) on any sign.

Option:

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

Section 2E.16 Abbreviations

Guidance:

Abbreviations should be kept to a minimum; however, they are useful when complete destination messages produce excessively long signs. If used, abbreviations should be unmistakably recognized by road users (see Section 1A.14).

Periods should not be used unless a cardinal direction is abbreviated as part of a destination name.

Standard:

The words NORTH, SOUTH, EAST, and WEST shall not be abbreviated when used with route signs to indicate cardinal directions on guide signs.

Table 2E-1. Minimum Letter and Numeral Sizes for Expressway Guide Signs According to Interchange Classification
(sizes shown in millimeters)

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Type of Sign	Type of Interchange (see Section 2E.29)				Overhead
	Major		Intermediate	Minor	
	Category a	Category b			
A. Advance Guide, Exit Direction, and Overhead Guide Signs					
Exit Plaque					
Word	250	250	250	200	250
Numeral & Letter	375	375	375	300	375
Interstate Route Sign					
Numeral	450	-	-	-	450
1 or 2 Digit Shield	900 x 900	-	-	-	900 x 900
3 Digit Shield	1125 x 900	-	-	-	1125 x 900
U.S. or Delaware State Route Sign					
Numeral	450	450	450	300	450
1 or 2 Digit Shield	900 x 900	900 x 900	900 x 900	600 x 600	900 x 900
3 Digit Shield	1125 x 900	1125 x 900	1125 x 900	750 x 600	1125 x 900
Alternate (Example: U.S. Alt. 56)					
Letters	375	300	300	250	300
Numeral	450	375	375	300	375
Cardinal Direction					
First Letter	450	375	300	250	375
Rest of Word	375	300	250	200	300
Name of Destination					
Upper-Case Letters	500	400	330	265	400
Lower-Case Letters	375	300	250	200	300
Distance Number	450	375	300	250	375
Distance Fraction	300	250	250	200	250
Distance Word	300	250	250	200	250
Action Message Word	250	250	250	200	250
B. Gore Signs					
Word	250	250	250	200	-
Numeral & Letter	300	300	300	250	-

Section 2E.17 <u>Symbols</u>

Standard:

Symbol designs shall be essentially like those shown in this Manual and in "Standard Highway Signs" (see Section 1A.11) and/or "DelDOT Standard Signs."

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Guidance:

A special effort should be made to balance legend components for maximum legibility of the symbol with the rest of the sign.

Option:

Educational plaques may be used below symbol signs where needed.

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Table 2E-1. Minimum Letter and Numeral Sizes for Expressway Guide Signs According to Interchange Classification
(sizes shown in inches)

Type of Sign	Type of Interchange (see Section 2E.29)				Overhead
	Major		Intermediate	Minor	
	Category a	Category b			
A. Advance Guide, Exit Direction, and Overhead Guide Signs					
Exit Plaque					
Word	10	10	10	8	10
Numeral & Letter	15	15	15	12	15
Interstate Route Sign					
Numeral	18	-	-	-	18
1 or 2 Digit Shield	36 x 36	-	-	-	36 x 36
3 Digit Shield	45 x 36	-	-	-	45 x 36
U.S. or Delaware State Route Sign					
Numeral	18	18	18	12	18
1 or 2 Digit Shield	36 x 36	36 x 36	36 x 36	24 x 24	36 x 36
3 Digit Shield	45 x 36	45 x 36	45 x 36	30 x 24	45 x 36
Alternate (Example: U.S. Alt. 56)					
Letters	15	12	12	10	12
Numeral	18	15	15	12	15
Cardinal Direction					
First Letter	18	15	12	10	15
Rest of Word	15	12	10	8	12
Name of Destination					
Upper-Case Letters	20	16	13.3	10.6	16
Lower-Case Letters	15	12	10	8	12
Distance Number	18	15	12	10	15
Distance Fraction	12	10	10	8	10
Distance Word	12	10	10	8	10
Action Message Word	10	10	10	8	10
B. Gore Signs					
Word	10	10	10	8	-
Numeral & Letter	12	12	12	10	-

Section 2E.18 <u>Arrows for Interchange Guide Signs</u>

Standard:

On all Exit Direction signs, both overhead and ground mounted, arrows shall be upward slanting and shall be located on the side of the sign consistent with the direction of the exiting movement.

Downward pointing arrows shall be used only for overhead guide signs to prescribe lane assignment for traffic bound for a destination or route that can be reached only by being in the designated lane(s).

Option:

Downward pointing arrows may be tilted where it is desired to emphasize the separation of roadways.

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

(Sheet 1 of 2)

Type of Sign	Minimum Size (mm)	Minimum Size (inches)
A. Pull-Through Signs		
Destination – Upper-Case Letters	330	13.3
Destination – Lower-Case Letters	250	10
Route Sign as Message		
Cardinal Direction	250	10
1- or 2-Digit Shield	900 x 900	36 x 36
3-Digit Shield	1125 x 900	45 x 36
B. Supplemental Guide Signs		
Exit Number Word	200	8
Exist Number Numeral and Letter	300	12
Place Name – Upper-Case Letters	265	10.6
Place Name – Lower-Case Letters	200	8
Action Message	200	8
C. Changeable Message Signs		
Characters	265*	10.6*
D. Interchange Sequence Signs		
Word – Upper-Case Letters	265	10.6
Word – Lower-Case Letters	200	8
Numeral	250	10
Fraction	200	8
E. Next X Exits Sign		
Place Name – Upper-Case Letters	265	10.6
Place Name – Lower-Case Letters	200	8
NEXT X EXITS	200	8
F. Distance Signs		
Word – Upper-Case Letters	200	8
Word – Lower-Case Letters	150	6
Numeral	200	8
G. General Services Signs		
Exit Number Word	200	8
Exist Number Numeral and Letter	300	12
Services	200	8
H. Rest Area and Scenic Area Signs		
Word	250	10
Distance Numeral	300	12
Distance Fraction	200	8
Distance Word	250	10
Action Message Word	250	10

Table 2E-2. Minimum Letter and Numeral Sizes for Expressway Guide Signs According to Sign Type
(Sheet 2 of 2)

Type of Sign	Minimum Size (mm)	Minimum Size (inches)
I. Reference Location Signs		
Word	100	4
Numeral	250	10
J. Boundary and Orientation Signs		
Word – Upper-Case Letters	200	8
Word – Lower-Case Letters	150	6
K. New Exit and Next Services Signs		
Word and Numeral	200	8
L. Exit Only Signs		
Word	300	12

* Changeable Message Signs may often require larger sizes than the minimum. A size of 450 mm (18 in) should be used where traffic speeds are greater than 90 km/h (55 mph), in areas of persistent inclement weather, or where complex driving tasks are involved.

Support:

Examples of arrows for use on guide signs are shown in Figure 2D-2. Detailed dimensions of arrows are provided in "Standard Highway Signs" (see Section 1A.11).

Section 2E.19 <u>Diagrammatic Signs</u>

Support:

Diagrammatic signs are guide signs that show a graphic view of the exit arrangement in relationship to the main highway. Use of such guide signs has been shown to be superior to conventional guide signs for some interchanges.

Standard:

Diagrammatic signs shall be designed in accordance with the following criteria:

A. The graphic legend shall be of a plan view showing the off-ramp arrangement (see Figure 2E-3).
B. No other symbols or route shields shall be used as a substitute for arrowheads.
C. They shall not be installed at the exit direction location (see Section 2E.33).
D. The EXIT ONLY panel shall not be used on diagrammatic signs at any major split.

Guidance:

Diagrammatic signs should be designed in accordance with the following additional criteria:

A. The graphic should not depict deceleration lanes.
B. No more than one destination should be shown for each arrowhead, and no more than two destinations should be shown per sign.
C. A black on yellow EXIT ONLY panel should be used to supplement a lane drop graphic.
D. The shaft for the exit ramp movement should be shorter than, but not separated from, the through movement graphic. Where the movements are freeway splits rather than exits, the shafts should be equal in length.
E. Arrow shafts should contain lane lines where appropriate.
F. Route shields, cardinal directions, and destinations should be clearly related to the arrowhead, and the arrowhead should point toward the route shield for the off movement.
G. The cardinal direction should be placed adjacent to the route shield, and the destination should be placed below and justified with the route shield.

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Table 2E-3. Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Interchange Classification
(sizes shown in millimeters)

Type of Sign	Type of Interchange (see Section 2E.29)				Overhead
	Major		Intermediate	Minor	
	Category a	Category b			
A. Advance Guide, Exit Direction, and Overhead Guide Signs					
Exit Plaque					
Word	250	250	250	250	250
Numeral & Letter	375	375	375	375	375
Interstate Route Sign					
Numeral	600/450	-	-	-	450
1- or 2-Digit Shield	1200 x 1200/ 900 x 900	-	-	-	900 x 900
3-Digit Shield	1500 x 1200/ 1125 x 900	-	-	-	1125 x 900
U.S. or Delaware State Route Sign					
Numeral	600/450	450	450	300	450
1- or 2-Digit Shield	1200 x 1200/ 900 x 900	900 x 900	900 x 900	600 x 600	900 x 900
3-Digit Shield	1500 x 1200/ 1125 x 900	1125 x 900	1125 x 900	750 x 600	1125 x 900
Alternate (Example: U.S. Alt. 56)					
Letters	375	375/300	300	250	300
Numeral	450	450/375	375	300	375
Cardinal Direction					
First Letter	450	375	375	250	300
Rest of Word	375	300	300	200	300
Name of Destination					
Upper-Case Letters	500	500	400	330	400
Lower-Case Letters	375	375	300	250	300
Distance Number	450	450/375	375	300	375
Distance Fraction	300	300/250	250	200	250
Distance Word	300	300/250	250	200	250
Action Message Word	300	300/250	250	200	250
B. Gore Signs					
Word	300	300	300	200	-
Numeral & Letter	375	375	375	250	-

Note: (/) Slanted bar signifies separation of desirable and minimum sizes.

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Table 2E-3. Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Interchange Classification
(sizes shown in inches)

Type of Sign	Type of Interchange (see Section 2E.29)				Overhead
	Major		Intermediate	Minor	
	Category a	Category b			
A. Advance Guide, Exit Direction, and Overhead Guide Signs					
Exit Plaque					
Word	10	10	10	10	10
Numeral & Letter	15	15	15	15	15
Interstate Route Sign					
Numeral	24/18	-	-	-	18
1- or 2-Digit Shield	48 x 48/ 36 x 36	-	-	-	36 x 36
3-Digit Shield	60 x 68/ 45 x 36	-	-	-	45 x 36
U.S. or Delaware State Route Sign					
Numeral	24/18	18	18	12	18
1- or 2-Digit Shield	48 x 48/ 36 x 36	36 x 36	36 x 36	24 x 24	36 x 36
3-Digit Shield	60 x 68/ 45 x 36	45 x 36	45 x 36	30 x 24	45 x 36
Alternate (Example: U.S. Alt. 56)					
Letters	15	15/12	12	10	12
Numeral	18	18/15	15	12	15
Cardinal Direction					
First Letter	18	15	15	10	15
Rest of Word	15	12	12	8	12
Name of Destination					
Upper-Case Letters	20	20	16	13.3	16
Lower-Case Letters	15	15	12	10	12
Distance Number	18	18/15	15	12	15
Distance Fraction	12	12/10	10	8	10
Distance Word	12	12/10	10	8	10
Action Message Word	12	12/10	10	8	10
B. Gore Signs					
Word	12	12	12	8	-
Numeral & Letter	15	15	15	10	-

Note: (/) Slanted bar signifies separation of desirable and minimum sizes.

Table 2E-4. Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Sign Type
(Sheet 1 of 2)

Type of Sign	Minimum Size (mm)	Minimum Size (inches)
A. Pull-Through Signs		
Destination – Upper-Case Letters	400	16
Destination – Lower-Case Letters	300	12
Route Sign as Message		
Cardinal Direction	300	12
1- or 2-Digit Shield	900 x 900	36 x 36
3-Digit Shield	1125 x 900	45 x 36
B. Supplemental Guide Signs		
Exit Number Word	250	10
Exist Number Numeral and Letter	375	15
Place Name – Upper-Case Letters	330	13.3
Place Name – Lower-Case Letters	250	10
Action Message	250	10
C. Changeable Message Signs		
Characters	265*	10.6*
D. Interchange Sequence Signs		
Word – Upper-Case Letters	330	13.3
Word – Lower-Case Letters	250	10
Numeral	330	13.3
Fraction	250	10
E. Next X Exits Sign		
Place Name – Upper-Case Letters	330	13.3
Place Name – Lower-Case Letters	250	10
NEXT X EXITS	250	10
F. Distance Signs		
Word – Upper-Case Letters	200	8
Word – Lower-Case Letters	150	6
Numeral	200	8
G. General Services Signs		
Exit Number Word	250	10
Exist Number Numeral and Letter	375	15
Services	250	10
H. Rest Area and Scenic Area Signs		
Word	300	12
Distance Numeral	375	15
Distance Fraction	250	10
Distance Word	300	12
Action Message Word	300	12

Table 2E-4. Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Sign Type
(Sheet 2 of 2)

Type of Sign	Minimum Size (mm)	Minimum Size (inches)
I. Reference Location Signs		
Word	100	4
Numeral	250	10
J. Boundary and Orientation Signs		
Word – Upper-Case Letters	200	8
Word – Lower-Case Letters	150	6
K. New Exit and Next Services Signs		
Word and Numeral	200	8
L. Exit Only Signs		
Word	300	12
M. Diagrammatic Signs		
Lane Widths	125	5
Lane Line Segments	25 x 150	1 x 6
Gap Between Lane Lines	150	6
Stem Height (up to upper point of departure)	750	30
Arrowhead (standard “up” arrow)	200	8
Space Between Arrowhead and Route Shield	300	12

* Changeable Message Signs may often require larger sizes than the minimum. A size of 450 mm (18 in) should be used where traffic speeds are greater than 90 km/h (55 mph), in areas of persistent inclement weather, or where complex driving tasks are involved.

Diagrammatic signs should be used at the Advance Guide sign location(s) for the following:

A. Left exits (see Figure 2E-3).
B. Splits where the off-route movement is to the left (see Figure 2E-4).
C. Optional lane splits for non-overlapping routes (see Figure 2E-5).
D. Where a two-lane exit has an optional lane that carries the through route (see Figures 2E-6 and 2E-7). These interchanges create serious expectancy problems for drivers who are unfamiliar with the interchange.
E. Left exit interchange lane drop situations. In this situation, an EXIT ONLY (E11-1c) panel should be used without a down arrow for Advance Guide signs (see Figure 2E-8).

Standard:

Diagrammatic signs have been shown to be inferior to conventional signs at cloverleaf interchanges and shall not be used at these locations.

Support:

Specific guidelines for more detailed design of diagrammatic signs are contained in “Standard Highway Signs” (see Section 1A.11).

Section 2E.20 <u>Signing for Interchange Lane Drops</u>

Standard:

Major guide signs for all lane drops at interchanges shall be mounted overhead. An EXIT ONLY panel shall be used for all interchange lane drops at which the through route is carried on the mainline.

Figure 2E-3. Diagrammatic Sign for a Single-Lane Left Exit

* The upper half of a Left Exit plaque, which contains the word LEFT, may have a black legend and border on a yellow background.

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Guidance:

The EXIT ONLY (down arrow) (E11-1) panel (see Figure 2E-9) should be used on all signing of lane drops on all Advance Guide signs for right exits (see Figure 2E-10). For lane drops on the left side, diagrammatic signing with the EXIT ONLY (E11-1c) panel (see Figure 2E-9) should be used without a down arrow for Advance Guide signs (see Figure 2E-8).

Standard:

The Exit Direction sign (see Figure 2E-20) and E11-1a panel (see Figure 2E-9) shall be of the format shown in Figures 2E-8 and 2E-10 for all lane drops. The standard slanted up arrow (left or right side) shall be included on the Exit Direction sign.

Option:

EXIT ONLY messages of either E11-1b or E11-1c formats may be used to retrofit existing signing to warn of a lane drop situation ahead.

Standard:

If used on an existing sign, the E11-1b panel (see Figure 2E-9) shall be placed on either side of a white down arrow. The E11-1c panel (see Figure 2E-9), if used on an existing nondiagrammatic sign, shall be placed between the lower destination message and the white down arrow.

Guidance:

Advance Guide signs for lane drops within 2 km or 1 mile of the interchange should not contain the distance message.

Wherever the dropped lane carries the through route, diagrammatic signs should be used without the EXIT ONLY panel.

Section 2E.21 <u>Changeable Message Signs</u>

Standard:

Changeable message signs shall be capable of displaying several messages in a sequence. Such messages shall be changed manually, by remote control, or by automatic controls. Changeable message signs shall display pertinent traffic operational and guidance information only, not advertising.

Figure 2E-4. Diagrammatic Signs for Split with Dedicated Lanes

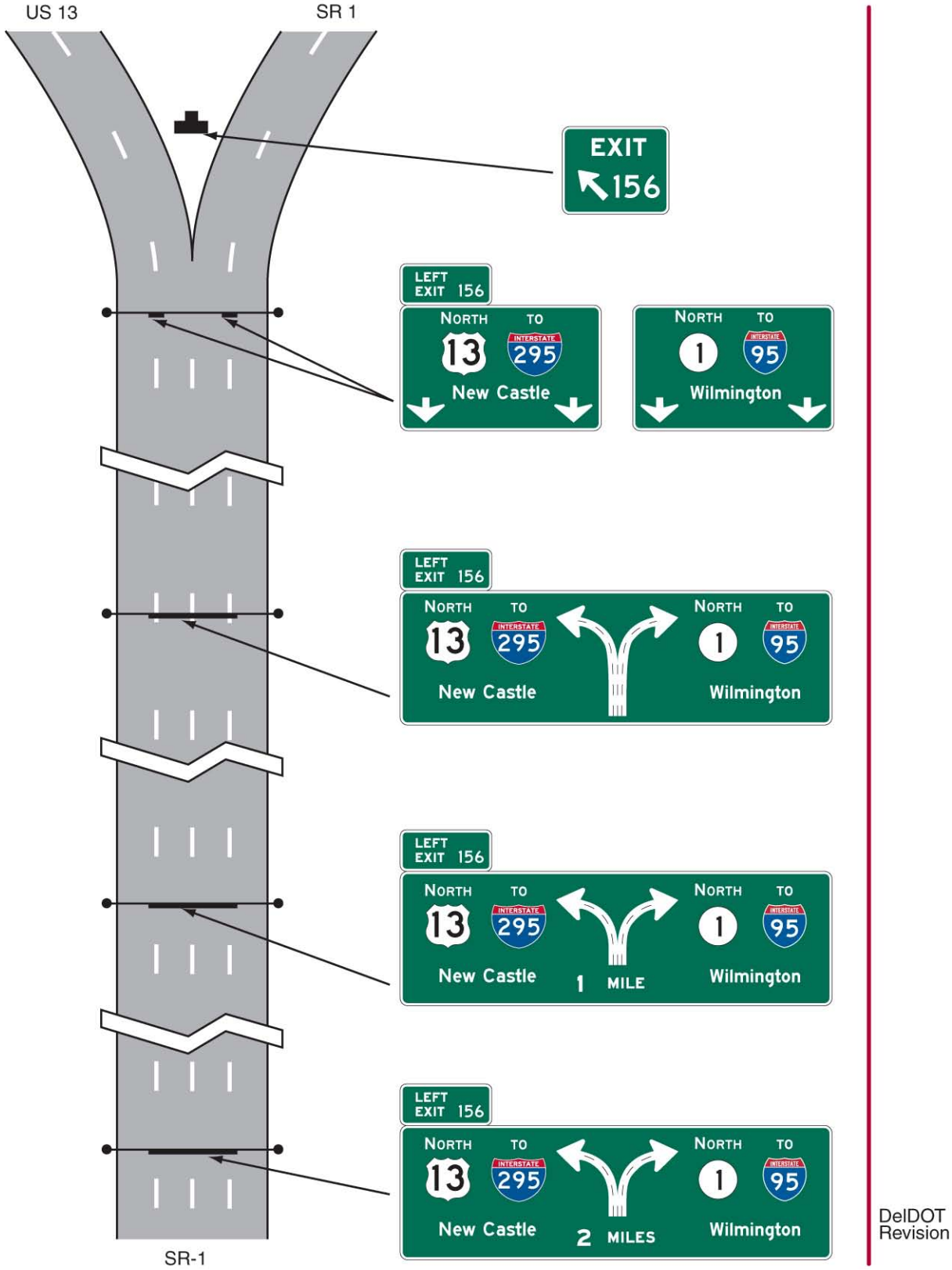

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Figure 2E-5. Diagrammatic Signs for Split with Optional Lane

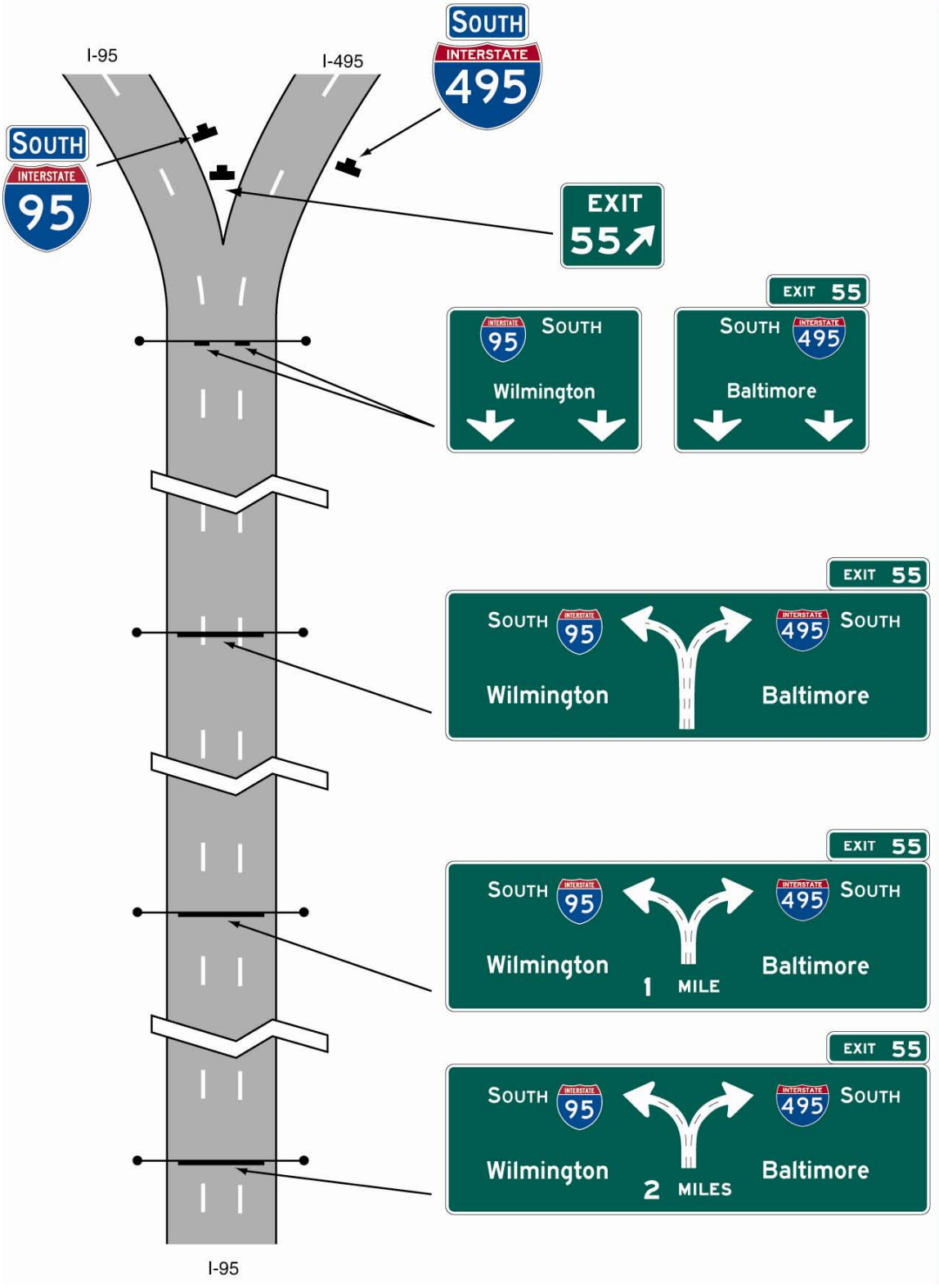

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Figure 2E-6. Diagrammatic Signs for Two-Lane Exit with Optional Lane

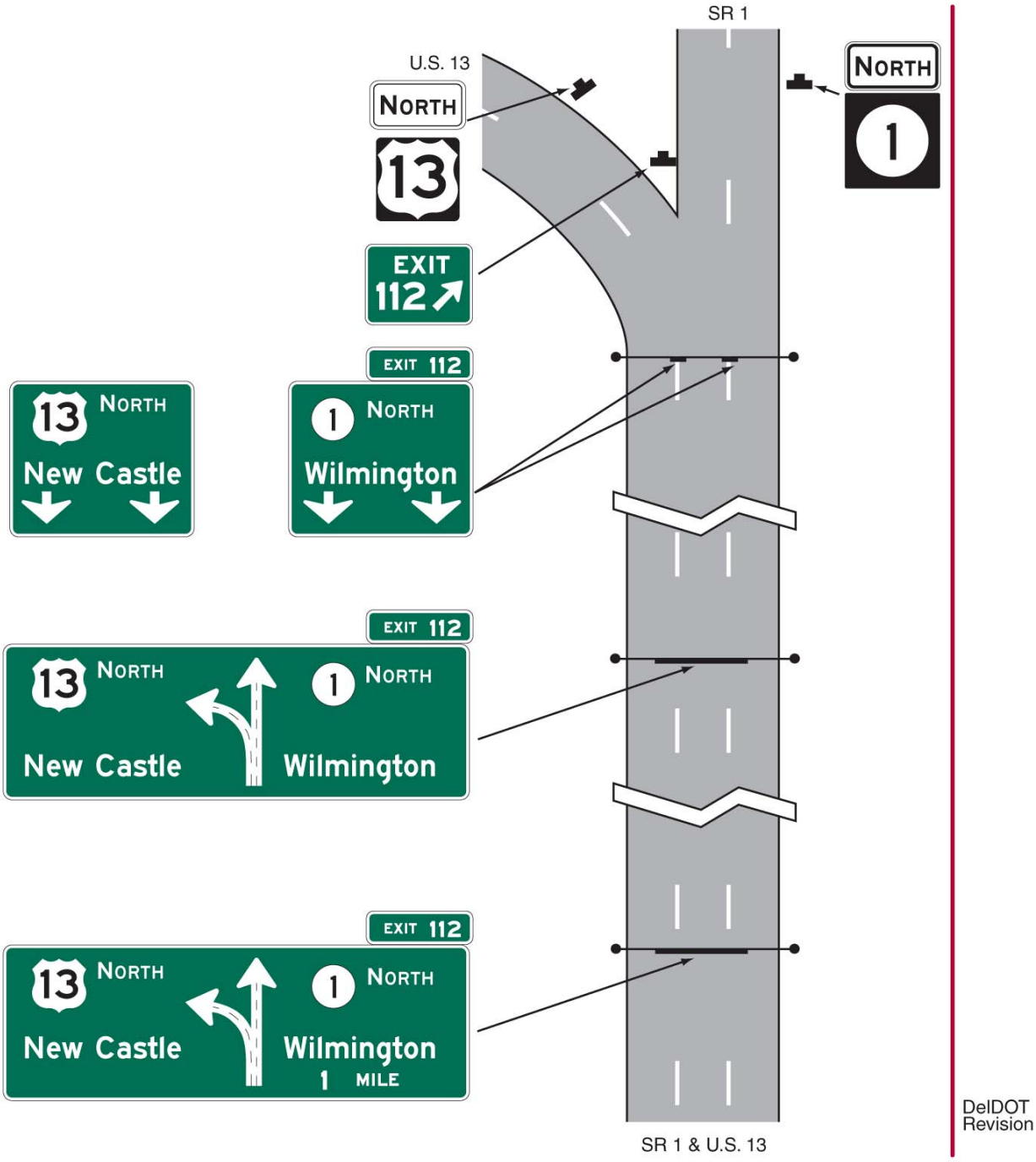

Figure 2E-7. Diagrammatic Signs for Two-Lane Exit with Optional Lane

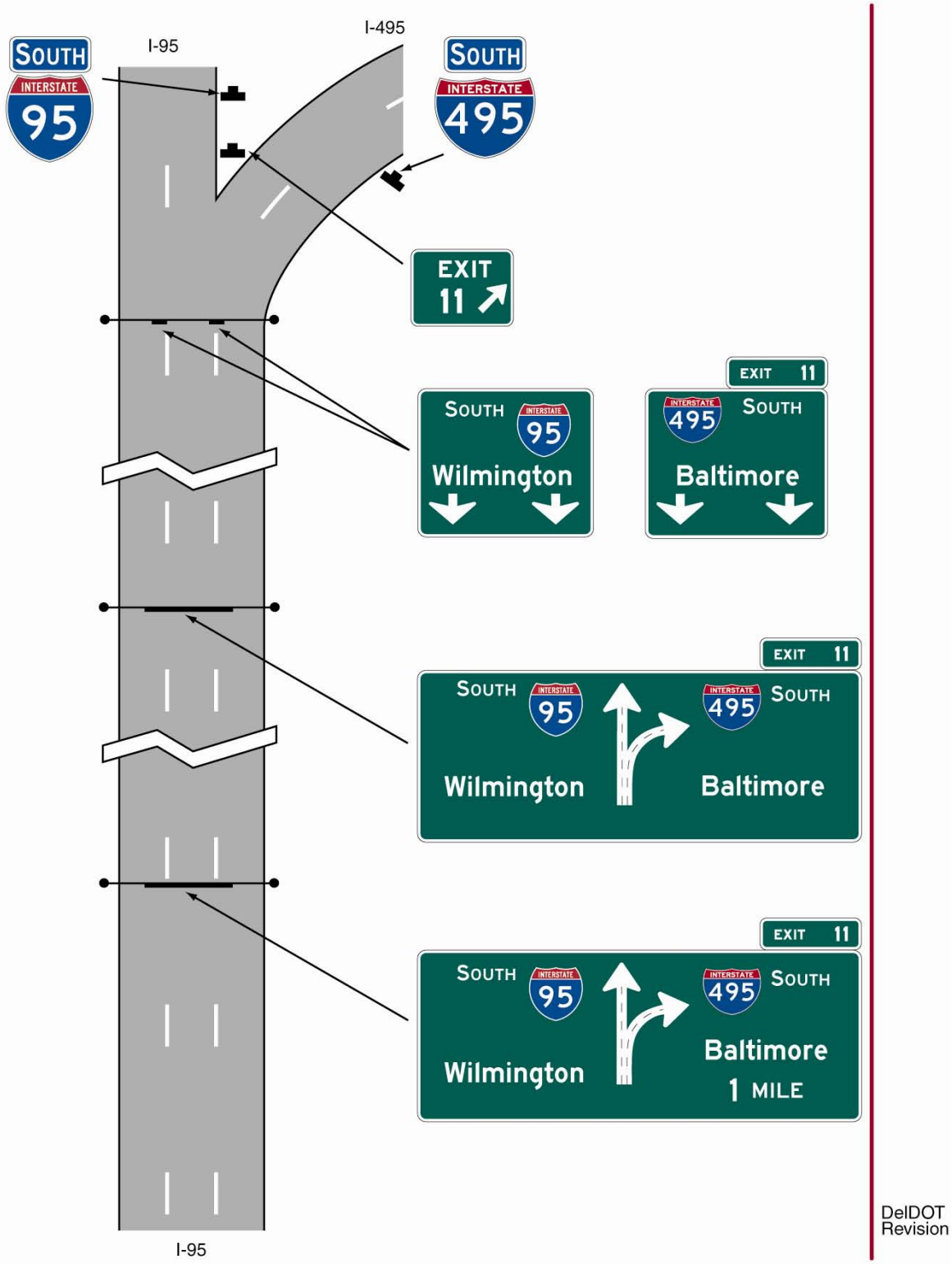

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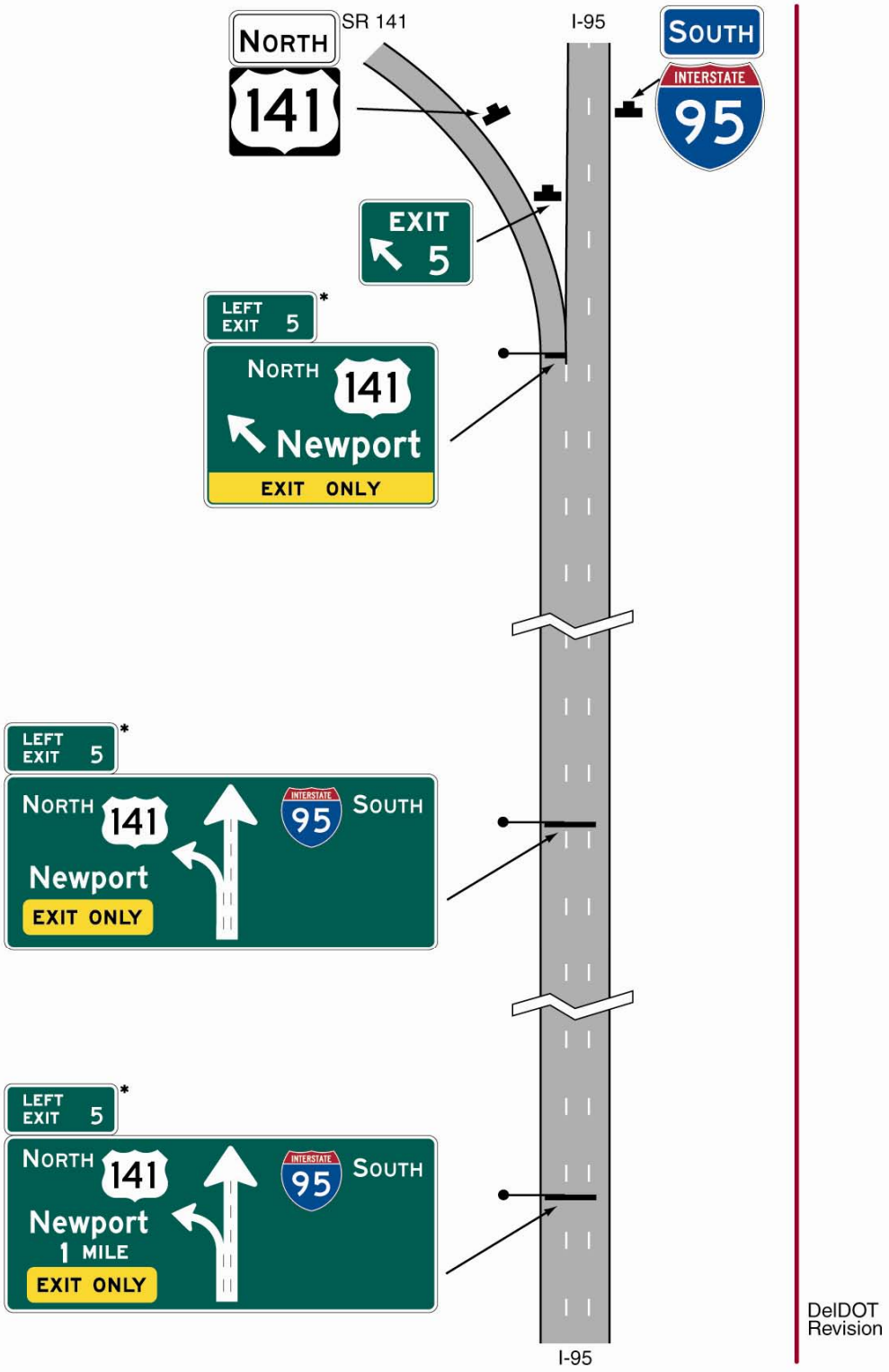
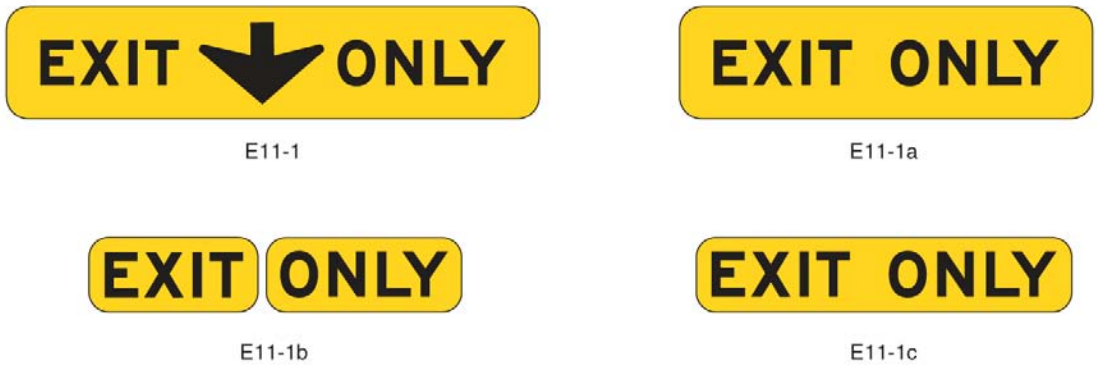
Figure 2E-8. EXIT ONLY on Left with Diagrammatic Sign for Left Lane Dropped at an Interchange



* The upper half of a Left Exit plaque, which contains the word LEFT, may have a black legend and border on a yellow background.

Figure 2E-9. EXIT ONLY Panels



Support:

Because technology for changeable message signs continues to advance, a specific standard for changeable message signs is not practical. Considerations that influence the selection of the best sign for a particular application include conspicuity, legibility, operation, and maintenance of the changeable message sign. This Section applies to signs for use on freeway and expressway mainlines. It is recognized that similar signs might be used on ramps and at ramp terminals where smaller letter heights and the number of messages might differ from the provisions of this Section.

Guidance:

To the extent practical, the design and application of changeable message signs should conform to the general principles of this Manual. Within the context of Section 2A.07, these practices should be followed for mainline freeway and expressway applications:

A. Changeable message signs should be capital letters and have a desirable letter size of 450 mm (18 in) or a minimum letter size of 265 mm (10.6 in). Signs should be limited to not more than 3 lines with not more than 20 characters per line.
B. No more than two displays should be used within any message cycle.
C. Each display should convey a single thought.
D. The entire message cycle should be readable at least twice by drivers traveling at the posted speed, the off-peak 85th-percentile speed, or the operating speed.

Standard:

Messages shall be centered within each line of legend. If more than one changeable message sign is visible to road users, then only one such sign shall display a sequential message at any given time.

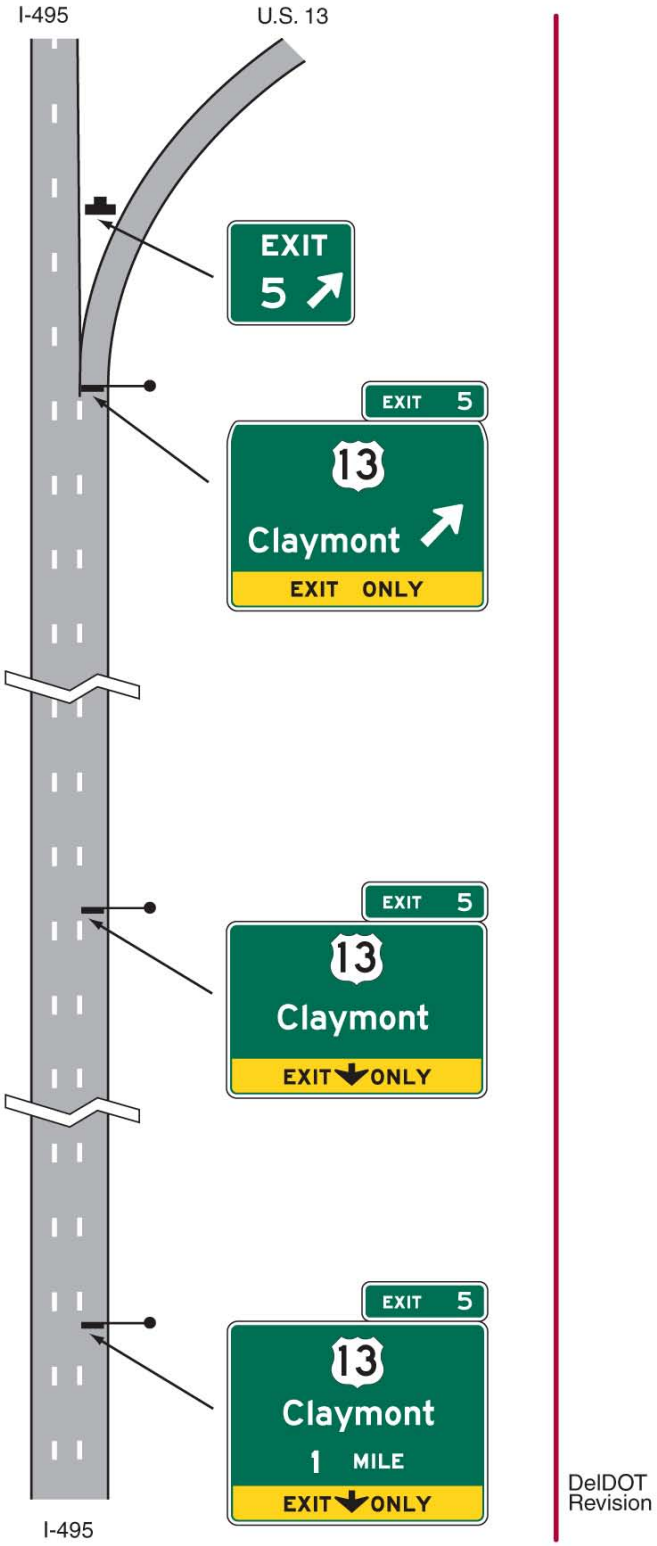
A three-line changeable message sign shall be limited to not more than two messages. Techniques of message display such as fading, exploding, dissolving, or moving messages shall not be used.

Section 2E.22 <u>Overhead Sign Installations</u>

Support:

Specifications for the design and construction of structural supports for highway signs have been standardized by the American Association of State Highway and Transportation Officials (AASHTO). Overcrossing structures can often serve for the support of overhead signs, and might in some cases be the only practical location that will provide adequate viewing distance. Use of these structures as sign supports will eliminate the need for additional sign supports along the roadside. Factors justifying the installation of overhead signs are given in Section 2A.17. Vertical clearance of overhead signs is discussed in Section 2A.18.

Figure 2E-10. EXIT ONLY Panels for Right Lane Dropped at an Interchange



Section 2E.23 Lateral Offset

Standard:

The minimum lateral clearance outside the usable roadway shoulder for ground-mounted freeway and expressway signs or for overhead sign supports, either to the right or left side of the roadway, shall be 1.8 m (6 ft). This minimum clearance shall also apply outside of a barrier curb. If located within the clear zone, the signs shall be mounted on crashworthy supports or shielded by appropriate crashworthy barriers.

Guidance:

Where practical, a sign should not be less than 3 m (10 ft) from the edge of the nearest traffic lane. Large guide signs especially should be farther removed, preferably 9 m (30 ft) or more from the nearest traffic lane.

Where an expressway median is 3.7 m (12 ft) or less in width, consideration should be given to spanning both roadways without a center support.

Where overhead sign supports cannot be placed a reasonably safe distance away from the line of traffic or in an otherwise protected site, they should either be designed to minimize the impact forces, or be adequately shielded by a physical barrier or guardrail of suitable design.

Standard:

Butterfly-type sign supports and other overhead non-crashworthy sign supports shall not be installed in gores or other unprotected locations within the clear zone.

Option:

Lesser clearances, but not generally less than 1.8 m (6 ft), may be used on connecting roadways or ramps at interchanges.

Section 2E.24 Guide Sign Classification

Support:

Freeway and expressway guide signs are classified and treated in the following categories:

A. Route signs and Trailblazer Assemblies (see Section 2E.25);
B. At-Grade Intersection signs (see Section 2E.26);
C. Interchange signs (see Sections 2E.27 through 2E.36);
D. Interchange Sequence signs (see Section 2E.37);
E. Community Interchanges Identification signs (see Section 2E.38);
F. NEXT X EXITS signs (see Section 2E.39);
G. General Service signs (see Section 2E.51);
H. Rest Area signs (see Section 2E.52);
I. Tourist Information and Welcome Center signs (NOT APPLICABLE IN DELAWARE); **DelDOT Rev.**
J. Reference Location signs (see Section 2E.54);
K. Miscellaneous guide signs (see Section 2E.55);
L. Radio Information signing (see Section 2E.56);
M. Carpool and Ridesharing signing (see Section 2E.57);
N. Weigh Station signing (see Section 2E.58);
O. Specific Service signs (see Chapter 2F); and
P. Recreational and Cultural Interest Area signs (see Chapter 2H).

Section 2E.25 Route Signs and Trailblazer Assemblies

Standard:

The official Route sign for the Interstate Highway System shall be the red, white, and blue retroreflective distinctive shield adopted by the American Association of State Highway and Transportation Officials (see Section 2D.11).

Guidance:

Route signs (see Figure 2E-11) should be incorporated as cut-out shields or other distinctive shapes on large directional guide signs. Where the Interstate shield is displayed in an assembly or on the face of a guide sign with U.S. or Delaware State Route signs, the Interstate numeral should be at least equal in **DelDOT Rev.**

size to the numerals on the other Route signs. The use of independent Route signs should be limited primarily to route confirmation assemblies.

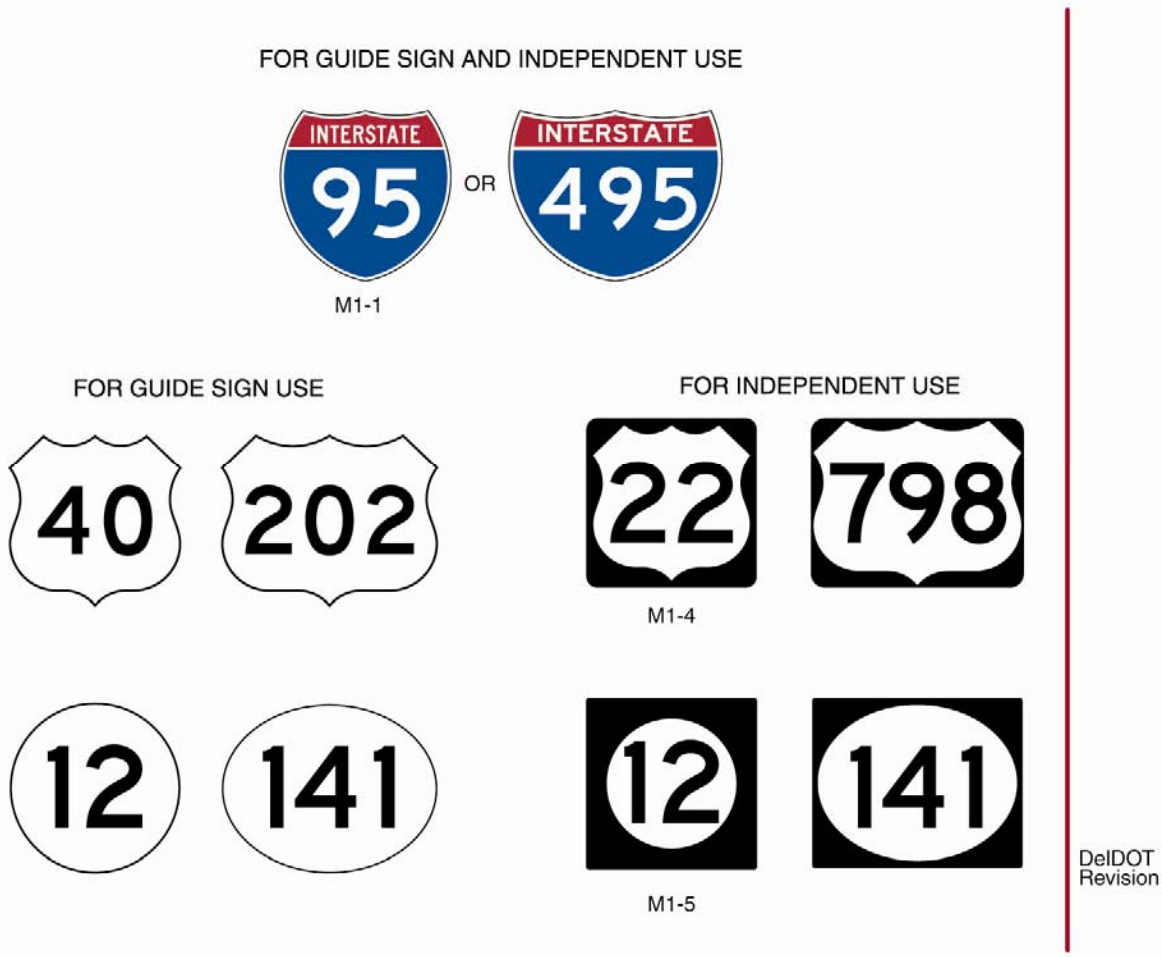
Route signs and auxiliary signs showing junctions and turns should be used for guidance on approach roads, for route confirmation just beyond entrances and exits, and for reassurance along the freeway or expressway. When used along the freeway or expressway, the Route signs should be enlarged as shown in "DelDOT Standard Signs" (see Section 1A.11). When independently mounted Route signs are used in place of Pull-Through signs, they should be located just beyond the exit. **DelDOT Rev.**

Option:

The standard Trailblazer Assembly (see Section 2D.32) may be used on roads leading to the freeway or expressway. Component parts of the Trailblazer Assembly may be included on a single sign panel. Independently mounted Route signs may be used instead of Pull-Through signs as confirmation information (see Section 2E.11). The commonly used name or trailblazer symbol for a toll facility may be displayed on non-toll sections of the Interstate Highway System at:

A. The last exit before entering a toll section of the Interstate Highway System;
B. The interchange or connection with a toll facility, whether or not the toll facility is a part of the Interstate Highway System; and
C. Other locations within a reasonable approach distance of toll facilities when the name or trailblazer symbol for the toll facility would provide better guidance to road users unfamiliar with the area than would place names and route numbers.

Figure 2E-11. Interstate, U.S., and State Route Signs



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The toll facility name or symbol may be included as a part of the guide sign installations on intersecting highways and approach roads to indicate the interchange with a toll section of an Interstate route. Where needed for the proper direction of traffic, a trailblazer for a toll facility that is part of the Interstate Highway System may be displayed with the Interstate Trailblazer Assembly.

Section 2E.26 Signs for Intersections at Grade

Guidance:

If there are intersections at grade within the limits of an expressway, guide sign types specified in Chapter 2D should be used. However, such signs should be of a size compatible with the size of other signing on the expressway.

Option:

Advance Guide signs for intersections at grade may take the form of diagrammatic layouts depicting the geometrics of the intersection along with essential directional information.

Section 2E.27 Interchange Guide Signs

Standard:

The signs at interchanges and on their approaches shall include Advance Guide signs and Exit Direction signs. Consistent destination messages shall be displayed on these signs.

Guidance:

New destination information should not be introduced into the major sign sequence for one interchange, nor should destination information be dropped.

Reference should be made to Section 2E.10 and Sections 2E.30 through 2E.39 for a detailed description of the signs in the order that they should appear at the approach to and beyond each interchange. Guide signs placed in advance of an interchange deceleration lane should be spaced at least 245 m (800 ft) apart.

Supplemental guide signing should be used sparingly as provided in Section 2E.32.

Section 2E.28 Interchange Exit Numbering

Support:

Interchange exit numbering provides valuable orientation for the road user on a freeway or expressway. The feasibility of numbering interchanges or exits on an expressway will depend largely on the extent to which grade separations are provided. Where there is appreciable continuity of interchange facilities, interrupted only by an occasional intersection at grade, the numbering will be helpful to the expressway user.

Standard:

Interchange numbering shall be used in signing each freeway interchange exit. Interchange exit numbers shall be displayed with each Advance Guide sign, Exit Direction sign, and Gore sign. The exit number shall be displayed on a separate plaque at the top of the Advance Guide or Exit Direction sign. The standard exit number plaque shall include the word EXIT, the appropriate exit number, and the suffix letter (on multi-exit interchanges) separated from the exit number by a space in a single-line format on a plaque 750 mm (30 in) in height. Exit numbers shall not include the cardinal initials corresponding to the directions of the cross route. Minimum numeral and letter sizes are given in Tables 2E-1 through 2E-4. If used, the interchange numbering system for expressways shall conform to the provisions prescribed for freeways.

Option:

There are two acceptable approaches to interchange exit numbering: (1) reference location sign numbering or (2) consecutive numbering. **DelDOT Rev.**

Support:

Reference location sign exit numbering is preferred over consecutive exit numbering for two reasons: (1) if new interchanges are added to a route, the highway agencies do not have to change the numbering sequence; and (2) reference location sign numbering assists road users in determining their destination distances and travel mileage.

Exit numbers may also be used with Supplemental Guide signs and Road User Service signs.

Guidance:

Exit number plaques should be located toward the top left edge of the sign for a left exit and toward the top right edge for right exits.

Because road users might not expect a left exit and might have difficulty in maneuvering to the left, the word LEFT should be added to the exit number plaque (see Figure 2E-3). Where a left exit is not numbered (no exit number plaque), a plaque with the word LEFT should be added to the top left edge of the sign.

Option:

The portion of the exit number plaque containing the word LEFT may have a black legend and border on a yellow background.

Support:

The general plan for numbering interchange exits is shown in Figures 2E-13 through 2E-14.

Example exit number plaque designs are shown in Figures 2E-3 and 2E-15. Figures 2E-1, 2E-20, 2E-23, 2E-27 through 2E-32, and 2E-42 illustrate the incorporation of exit number plaques on guide signs.

Standard:

Where a route originates within Delaware, the southernmost or westernmost terminus shall be the beginning point for numbering. If a loop or spur route crosses State boundaries, the sequence of numbering shall be coordinated with the bordering State to provide continuous numbering.

The interchange numbers on loop routes shall begin at the loop interchange nearest the south or west mainline junction and increase in magnitude toward the north or east mainline junction (see Figure 2E-13). Spur route interchanges shall be numbered in ascending order starting at the interchange where the spur leaves the mainline of the principal route (see Figure 2E-13). **DelDOT Rev.**

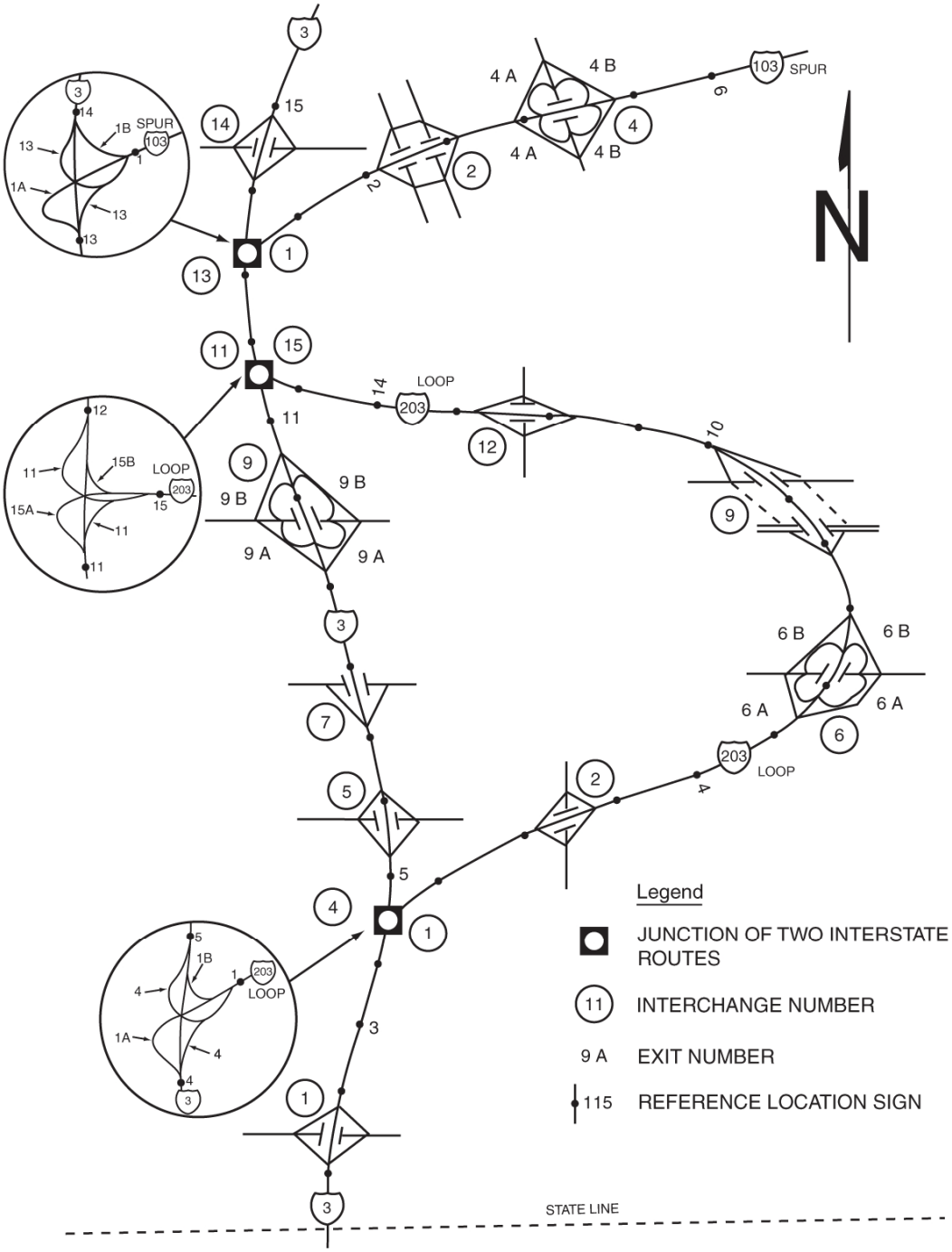
Where numbered routes overlap, continuity of interchange numbering shall be established for only one of the routes (see Figure 2E-14). If one of the routes is an Interstate, the Interstate route shall maintain continuity of interchange numbering.

Guidance:

The route chosen for continuity of interchange numbering should also have reference location sign continuity (see Figure 2E-14).

Figure 2E-12. Example of Interchange Numbering for Mainline and Circumferential Routes (NOT APPLICABLE IN DELAWARE) **DelDOT Rev.**

Figure 2E-13. Example of Interchange Numbering for Mainline, Loop, and Spur Routes



Section 2E.29 Interchange Classification

Support:

For signing purposes, interchanges are classified as major, intermediate, and minor. The minimum alphabet sizes contained in Tables 2E-1 and 2E-3 are based on this classification. Descriptions of these classifications are as follows:

A. Major interchanges are subdivided into two categories: (a) interchanges with other expressways or freeways, or (b) interchanges with high-volume multi-lane highways, principal urban arterials, or major rural routes where the volume of interchanging traffic is heavy or includes many road users unfamiliar with the area.
B. Intermediate interchanges are those with urban and rural routes not in the category of major or minor interchanges.
C. Minor interchanges include those where traffic is local and very light, such as interchanges with land service access roads. Where the sum of exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classified as minor.

Section 2E.30 Advance Guide Signs

Support:

The Advance Guide sign gives notice well in advance of the exit point of the principal destinations served by the next interchange and the distance to that interchange (see Figure 2E-15).

Guidance:

For major and intermediate interchanges (see Section 2E.29), Advance Guide signs should be placed at 1 km or 0.5 miles and at 2 km or 1 mile in advance of the exit with a third Advance Guide sign placed at 4 km (2 mi) in advance of the exit if spacing permits. At minor interchanges, only one Advance Guide sign should be used. It should be located 1 to 2 km or 0.5 to 1 mile from the exit gore. If the sign is located less than 1 km or 0.5 miles from the exit, the distance shown should be to the nearest 400 m or 1/4 mile. Fractions of kilometers or decimals of kilometers should not be used. Fractions of a mile, rather than decimals, should be shown in all cases.

Where Advance Guide signs are provided for a left exit, diagrammatic signs should be used (see Figure 2E-3).

Standard:

When used, Advance Guide signs shall contain the distance message. The legend on the Advance Guide signs shall be the same as the legend on the Exit Direction sign, except that the last line shall read EXIT X km (EXIT X MILES). If the interchange has two or more exit roadways, the bottom line shall read EXITS X km (EXITS X MILES).

Option:

Where interchange exit numbers are used, the word EXIT may be omitted from the bottom line. Where the distance between interchanges is more than 2 km or 1 mile, but less than 4 km or 2 miles, the first Advance Guide sign may be closer than 4 km or 2 miles, but not placed so as to overlap the signing for the previous exit. Duplicate Advance Guide signs or Interchange Sequence Series signs may be placed in the median on the opposite side of the roadway and are not included in the minimum requirements of interchange signing.

Guidance:

Where there is less than 245 m (800 ft) between interchanges, Interchange Sequence Series signs should be used instead of Advance Guide signs for the affected interchanges.

Section 2E.31 Next Exit Supplemental Signs

Option:

Where the distance to the next interchange is unusually long, Next Exit supplemental signs may be installed to inform road users of the distance to the next interchange (see Figure 2E-16).

Guidance:

The Next Exit supplemental sign should not be used unless the distance between successive interchanges is more than 8 km (5 mi).

Figure 2E-14. Example of Interchange Numbering If Routes Overlap

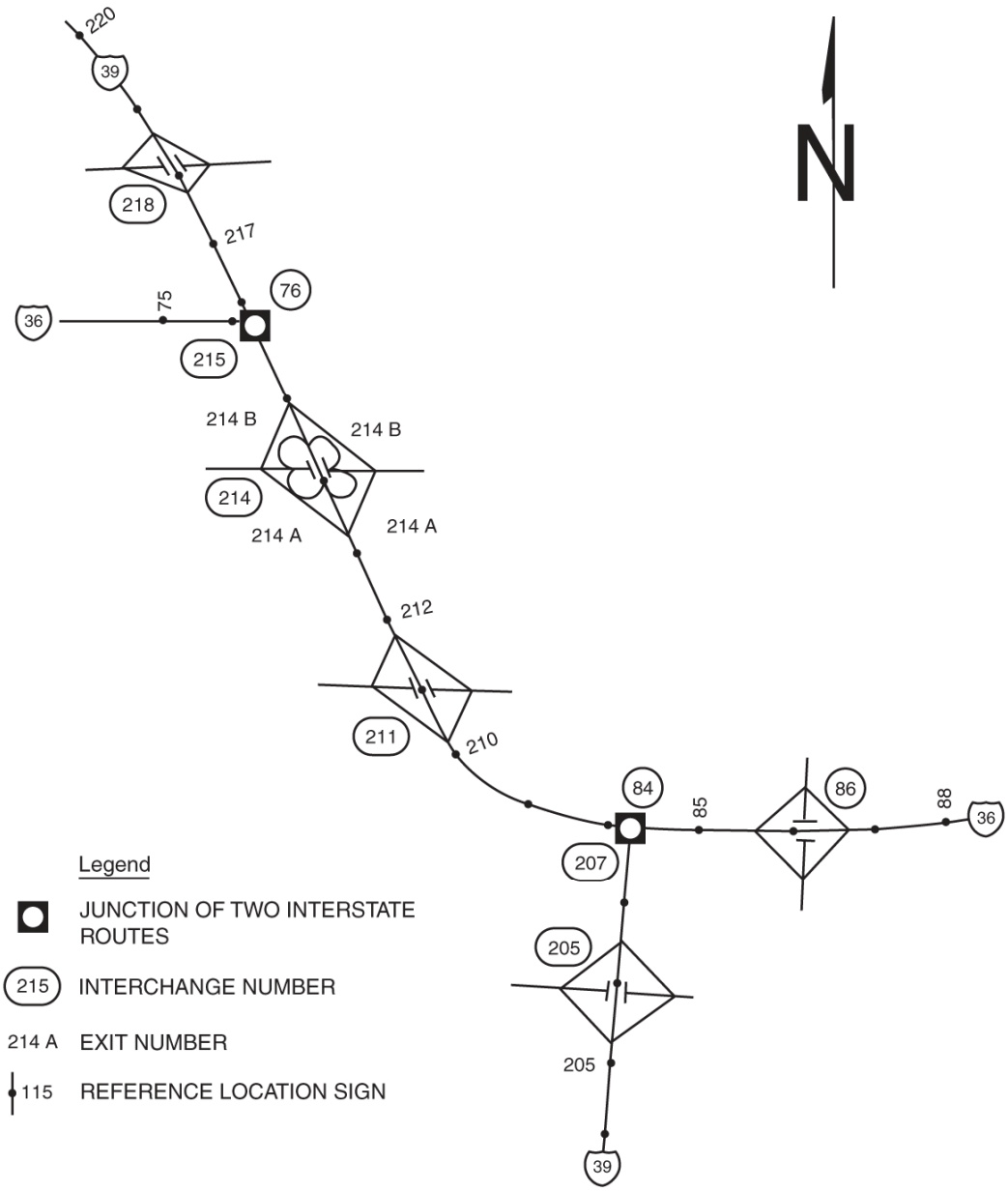


Figure 2E-15. Examples of Interchange Advance Guide Signs

E1-1

E1-1a

Note: Delete word EXIT(S) if exit number is used.

E1-2

E1-2a

E1-5
Exit Number Plaque

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Figure 2E-16. Next Exit Supplemental Advance Guide Signs

E2-1

E2-1A

Standard:

The Next Exit supplemental sign shall carry the legend NEXT EXIT X km (X MILES). If the Next Exit supplemental sign is used, it shall be placed below the Advance Guide sign nearest the interchange. It shall be mounted so as to not adversely affect the breakaway feature of the sign support structure.

Option:

The legend for the Next Exit supplemental sign may be displayed in either one or two lines. The one-line message is the more desirable choice unless the message causes the sign to have a horizontal dimension greater than that of the Advance Guide sign.

Section 2E.32 <u>Other Supplemental Guide Signs</u>

Support:

Supplemental Guide signs can be used to provide information regarding destinations accessible from an interchange, other than places shown on the standard interchange signing. However, such Supplemental Guide signing can reduce the effectiveness of other more important guide signing because of the possibility of overloading the road user's capacity to receive visual messages and make appropriate decisions. "The AASHTO Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways" is incorporated by reference in this section (see Page i for AASHTO's address).

Guidance:

No more than one Supplemental Guide sign should be used on each interchange approach.

A Supplemental Guide sign (see Figure 2E-17) should not list more than two destinations. Destination names should be followed by the interchange number (and suffix), or if interchanges are not numbered, by the legend NEXT RIGHT or SECOND RIGHT or both, as appropriate. The Supplemental Guide sign should be installed as an independent guide sign assembly.

Where two or more Advance Guide signs are used, the Supplemental Guide sign should be installed approximately midway between two of the Advance Guide signs. If only one Advance Guide sign is used, the Supplemental Guide sign should follow it by at least 245 m (800 feet). If the interchanges are numbered, the interchange number should be used for the action message.

Refer to "The AASHTO Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways" for additional guidance regarding population, amount of traffic generated, distance from the route, and the significance of the destination. **DelDOT Rev.**

Standard:

Guide signs directing drivers to park and ride facilities shall be considered as Supplemental Guide signs (see Figures 2E-18 and 2E-19).

Figure 2E-17. Supplemental Guide Signs for Multi-exit Interchanges

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Figure 2E-18. Supplemental Guide Sign for a Park and Ride Facility (Route without Exit Numbering)

Figure 2E-19. Supplemental Guide Sign for a Park and Ride Facility (Route with Exit Numbering)

Figure 2E-20. Interchange Exit Direction Sign

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Section 2E.33 Exit Direction Signs

Support:

The Exit Direction sign repeats the route and destination information that was shown on the Advance Guide sign(s) for the next exit, and thereby assures road users of the destination served and indicates whether they exit to the right or the left for that destination.

Standard:

Exit Direction signs (see Figure 2E-20) shall be used at major and intermediate interchanges. Population figures or other similar information shall not be used on Exit Direction signs.

Guidance:

Exit Direction signs should be used at minor interchanges.

Ground-mounted Exit Direction signs should be installed at the beginning of the deceleration lane. If there is less than 90 m (300 ft) from the beginning of the deceleration lane to the theoretical gore (see Figure 3B-8), the Exit Direction sign should be installed overhead over the exiting lane in the vicinity of the theoretical gore.

Standard:

Where a through lane is being terminated (dropped) at an exit, the Exit Direction sign shall be placed overhead at the theoretical gore (see Figures 2E-8 and 2E-10).

The following provisions shall govern the design and application of the overhead Exit Direction sign:

A. The sign shall carry the exit number (if used), the route number, cardinal direction, and destination with an appropriate upward slanting arrow (see Figure 2E-20).

B. The message EXIT ONLY in black on a yellow panel shall be used on the overhead Exit Direction sign to advise road users of a lane drop situation. The sign shall conform to the provisions of Section 2E.20.

C. Diagrammatic signs shall not be employed at the exit direction location.

Guidance:

Exit number plaques should be located toward the left edge of the sign for a left exit and toward the right edge for right exits.

Option:

In some cases, principally in urban areas, where restricted sight distance because of structures or unusual alignment make it impossible to locate the Exit Direction sign without violating the required minimum spacing (see Section 2E.30) between major guide signs, Interchange Sequence signs (see Section 2E.37) may be substituted for an Advance Guide sign.

Guidance:

At multi-exit interchanges, the Exit Direction sign should be located directly over the exiting lane for the first exit. At the same location, and normally over the right through lane, an Advance Guide sign for the second exit should be located. Only for those conditions where the through movement is not evident should a confirmatory message (Pull-Through sign as shown in Figure 2E-2) be used over the left lane(s) to guide road users traveling through an interchange. In the interest of sign spreading, three signs on one structure should not be used. When the freeway or expressway is on an overpass, the Exit Direction sign should be installed on an overhead support over the exit lane in advance of the gore point.

Option:

If the second exit is beyond an underpass, the Exit Direction sign may be mounted on the face of the overhead structure.

Section 2E.34 Exit Gore Signs

Support:

The Exit Gore sign in the gore indicates the exiting point or the place of departure from the main roadway. Consistent application of this sign at each exit is important.

Standard:

The gore shall be defined as the area located between the main roadway and the ramp just beyond where the ramp branches from the main roadway. The Exit Gore sign shall be located in the gore and shall carry the word EXIT or EXIT XX (if interchange numbering is used) and an appropriate upward slanting arrow (see Figure 2E-21). Breakaway or yielding supports shall be used.

Guidance:

The arrow should be aligned to approximate the angle of departure. Each gore should be treated similarly, whether the interchange has one exit roadway or multiple exits.

Option:

Where extra emphasis of an especially low advisory ramp speed is needed, an E13-1 panel indicating the advisory speed may be mounted below the Exit Gore sign (see Figure 2E-21) to supplement, but not to replace, the exit or ramp advisory speed warning signs.

Section 2E.35 Post-Interchange Signs

Guidance:

If space between interchanges permits, as in rural areas, and where undue repetition of messages will not occur, a fixed sequence of signs should be displayed beginning 150 m (500 ft) beyond the end of the acceleration lane. At this point a Route sign assembly should be installed followed by a Speed Limit sign and a Distance sign, each at a spacing of 300 m (1,000 ft).

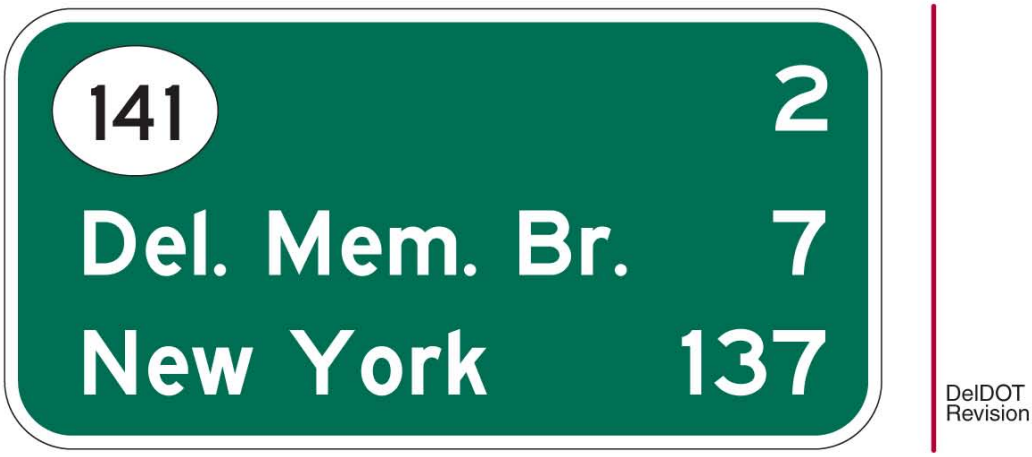
If space between interchanges does not permit placement of these three post-interchange signs without encroaching on or overlapping the Advance Guide signs necessary for the next interchange, or in rural areas where the interchanging traffic is primarily local, one or more of the post-interchange signs should be omitted.

Option:

Usually the Distance sign will be of less importance than the other two signs and may be omitted, especially if Interchange Sequence signs are used. If the sign for through traffic on an overhead assembly already contains the route sign, the post-interchange route sign assembly may also be omitted.

Figure 2E-21. Exit Gore Signs

Figure 2E-22. Post-Interchange Distance Sign



Section 2E.36 <u>Distance Signs</u>

Standard:

If used, the post-interchange Distance sign shall consist of a two- or three-line sign carrying the names of significant destination points and the distances to those points. The top line of the sign shall identify the next meaningful interchange with the name of the community near or through which the route passes, or if there is no community, the route number or name of the intersected highway (see Figure 2E-22).

Support:

The minimum sizes of the route shields identifying a significant destination point are prescribed in Tables 2E-1 through 2E-4.

Option:

The text identification of a route may be shown instead of a route shield, such as "US XX" or "State Route XX". **DelDOT Rev.**

Guidance:

If a second line is used, it should be reserved for communities of general interest that are located on or immediately adjacent to the route or for major traffic generators along the route.

Option:

The choice of names for the second line, if it is used, may be varied on successive Distance signs to give road users maximum information concerning communities served by the route.

Standard:

The third, or bottom line, shall contain the name and distance to a control city (if any) that has national significance for travelers using the route.

Guidance:

Distances to the same destinations should not be shown more frequently than at 8 km (5 mi) intervals. The distances displayed on these signs should be the actual distance to the destination points and not to the exit from the freeway or expressway.

Section 2E.37 <u>Interchange Sequence Signs</u>

Guidance:

If there is less than 245 m (800 ft) between interchanges, Interchange Sequence signs should be used instead of the Advance Guide signs for the affected interchanges. If used, Interchange Sequence signs

should be used over the entire length of a route in an urban area. They should not be used on a single interchange basis.

Option:

If interchanges are closely spaced, particularly through large urban areas, so that guide signs cannot be adequately spaced, Interchange Sequence signs identifying the next two or three interchanges may be used.

Support:

Interchange Sequence signs are generally supplemental to Advance Guide signs. Signing of this type is illustrated in Figures 2E-23 and 2E-24, and is compatible with the sign spreading concept.

These signs are installed in a series and display the next two or three interchanges by name or route number with distances to the nearest 400 m or 1/4 mile.

Standard:

If used, the first sign in the series shall be located in advance of the first Advance Guide sign for the first interchange.

Where the exit direction is to the left, interchange names or route numbers shown on such signs shall be followed by the legend LEFT or LEFT EXIT in black letters on a yellow rectangular background.

Interchange Sequence signs shall not be substituted for Exit Direction signs.

Guidance:

Interchange Sequence signs should be located in the median. After the first of the series, Interchange Sequence signs should be placed approximately midway between interchanges.

Standard:

Interchange Sequence signs located in the median shall be installed at overhead sign height.

Option:

Interchange numbers may be shown to the left of the interchange name or route number.

Section 2E.38 Community Interchanges Identification Signs

Support:

For suburban or rural communities served by two or three interchanges, Community Interchanges Identification signs are useful (see Figure 2E-25).

Guidance:

In these cases, the name of the community followed by the word EXITS should be shown on the top line; the lines below should display the destination, road name or route number, and the corresponding distances to the nearest 400 m or 1/4 mile.

The sign should be located in advance of the first Advance Guide sign for the first interchange within the community.

Option:

If interchanges are not conveniently identifiable or if there are more than three interchanges to be identified, the NEXT X EXITS sign (see Section 2E.39) may be used.

Section 2E.39 NEXT X EXITS Sign

Support:

Many freeways or expressways pass through historical or recreational regions, or urban areas served by a succession of several interchanges.

Option:

Such regions or areas may be indicated by a NEXT X EXITS sign (see Figure 2E-26) located in advance of the Advance Guide sign or signs for the first interchange.

Guidance:

The sign legend should identify the region or area followed by the words NEXT X EXITS.

Figure 2E-23. Signing of Closely Spaced Interchanges Using Interchange Sequence Signs

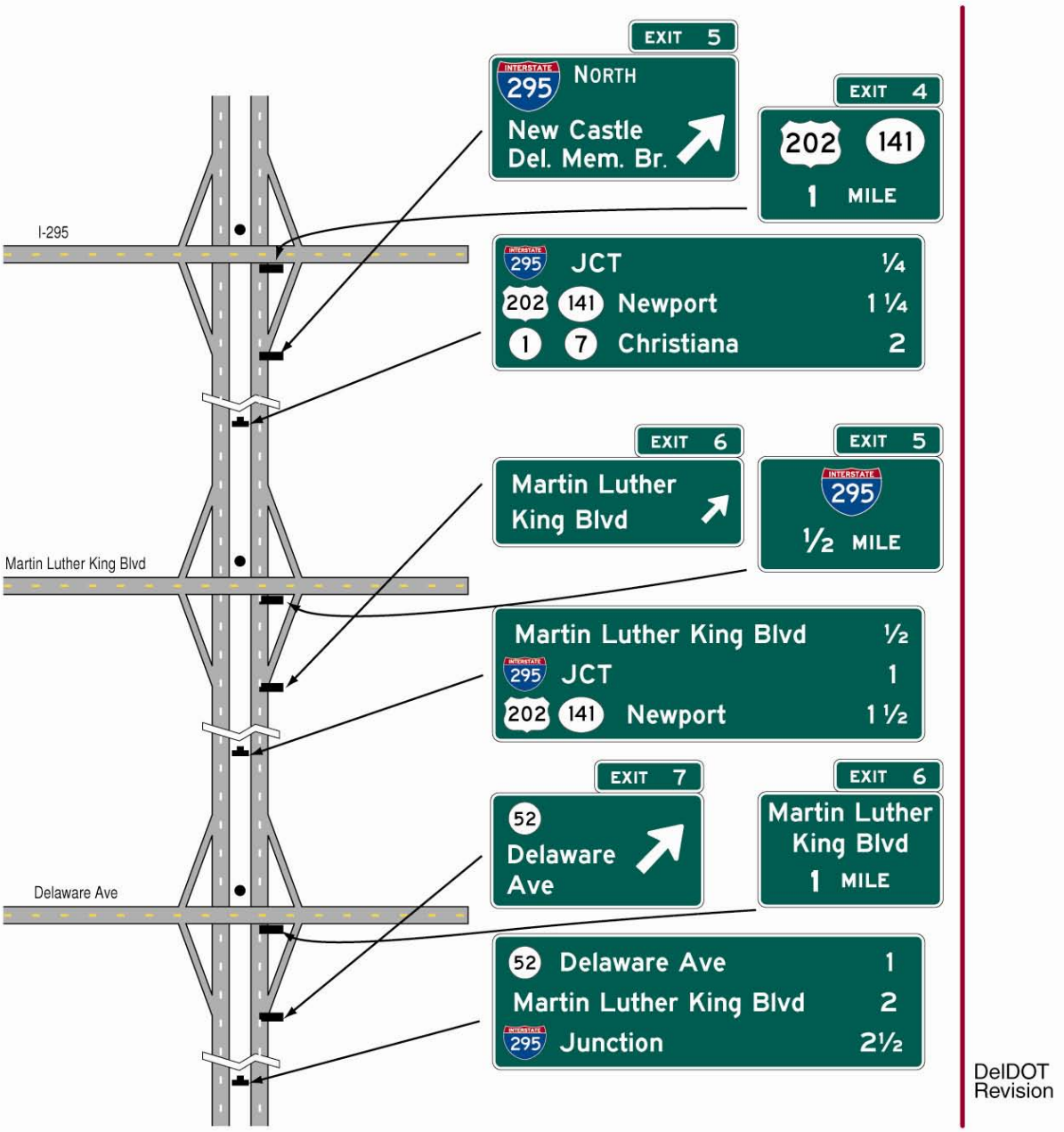


Figure 2E-24. Interchange Sequence Sign

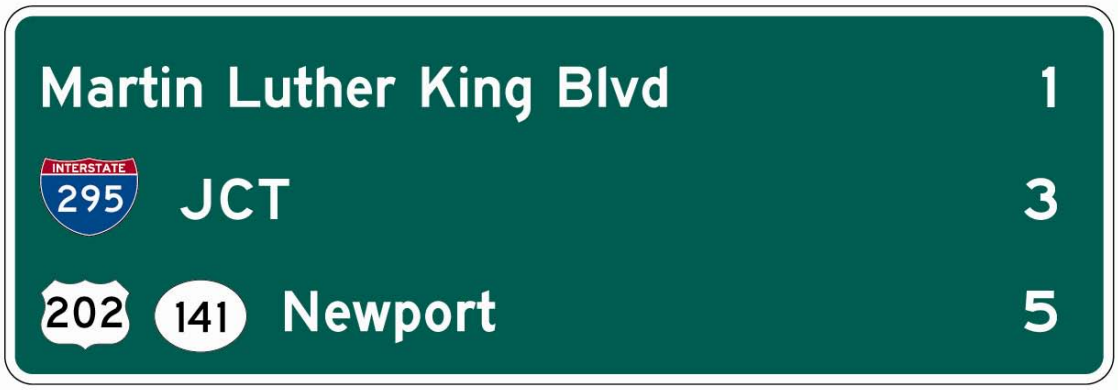


Figure 2E-25. Community Interchanges Identification Sign

Figure 2E-26. NEXT EXITS Signs

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Section 2E.40 Signing by Type of Interchange

Support:

Road users need signs to help identify the location of the exit, as well as to obtain route, direction, and destination information for specific exit ramps. Figures 2E-27 through 2E-32 show examples of guide signs for common types of interchanges. The interchange layouts shown in most of the figures illustrate only the major guide signs for one direction of traffic on the through road and on the crossroad.

Standard:

Interchange guide signing shall be consistent for each type of interchange along a route.

Guidance:

The signing layout for all interchanges having only one exit ramp in the direction of travel should be similar, regardless of the interchange type (see Figures 2E-8, 2E-10, and Figures 2E-27 through 2E-32). For the sake of uniform application, the significant features of the signing plan for each of the more frequent kinds of interchanges (illustrated in Figures 2E-27 through 2E-32) should be followed as closely as possible. Even when unusual geometric features exist, variations in signing layout should be held to a minimum.

Section 2E.41 Freeway-to-Freeway Interchange

Support:

Freeway-to-freeway interchanges are major decision points where the effect of taking a wrong ramp cannot be easily corrected. Reversing direction on the connecting freeway or reentering to continue on the intended course is usually not possible. Figure 2E-27 shows examples of guide signs at a freeway-to-freeway interchange.

Guidance:

The sign messages should contain only the route shield, cardinal direction, and the name of the next control city on the route. Arrows should point as indicated in Section 2D.08, unless a diagrammatic representation of the interchange layout requires otherwise.

At splits where the off-route movement is to the left or where there is an optional lane split, expectancy problems usually result, and diagrammatic signs should be used at the Advance Guide sign location. Diagrammatic signs (see Section 2E.19) also should be used at the Advance Guide sign locations for interchanges where two-lane exits with an optional lane carry the through route on the exiting lanes.

Standard:

Overhead signs shall be used at a distance of 2 km or 1 mile and at the theoretical gore of each connecting ramp. When diagrammatic signs are used, they shall conform to the provisions of Section 2E.19.

Option:

Overhead signs may also be used at the 1 km or 0.5 mile and 4 km or 2 mile points.

The arrow and/or the name of the control city may be omitted on signs that indicate the straight-ahead continuation of a route.

An Exit Speed sign may be used where an engineering study shows that it is necessary to display a speed reduction message for ramp signing (see Section 2C.36).

Section 2E.42 Cloverleaf Interchange

Support:

A cloverleaf interchange has two exits for each direction of travel. The exits are closely spaced and have common Advance Guide signs. Examples of guide signs for cloverleaf interchanges are shown in Figure 2E-28.

Guidance:

The Advance Guide signs should include two place names, one corresponding to each exit ramp, with the name of the place served by the first exit on the upper line.

Figure 2E-27. Examples of Freeway-to-Freeway Interchange Guide Signs

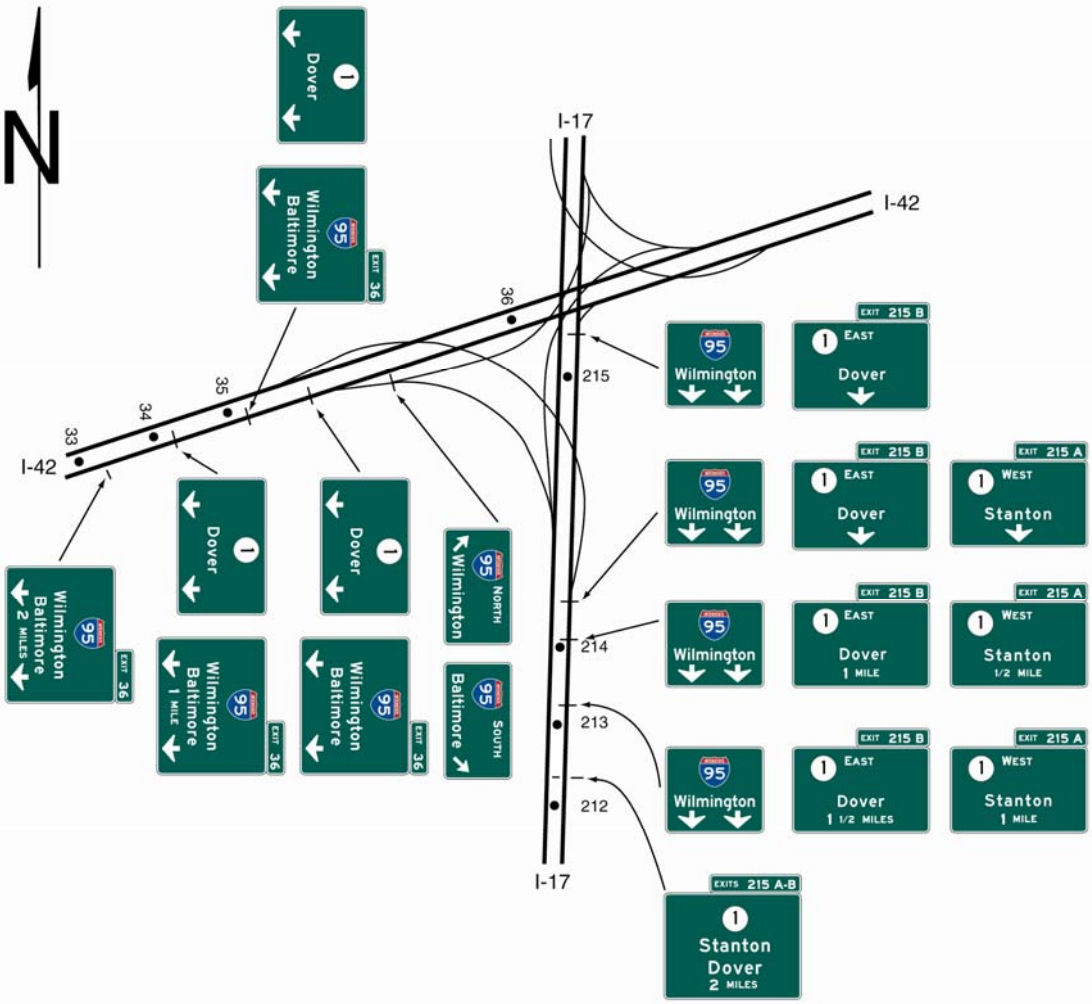

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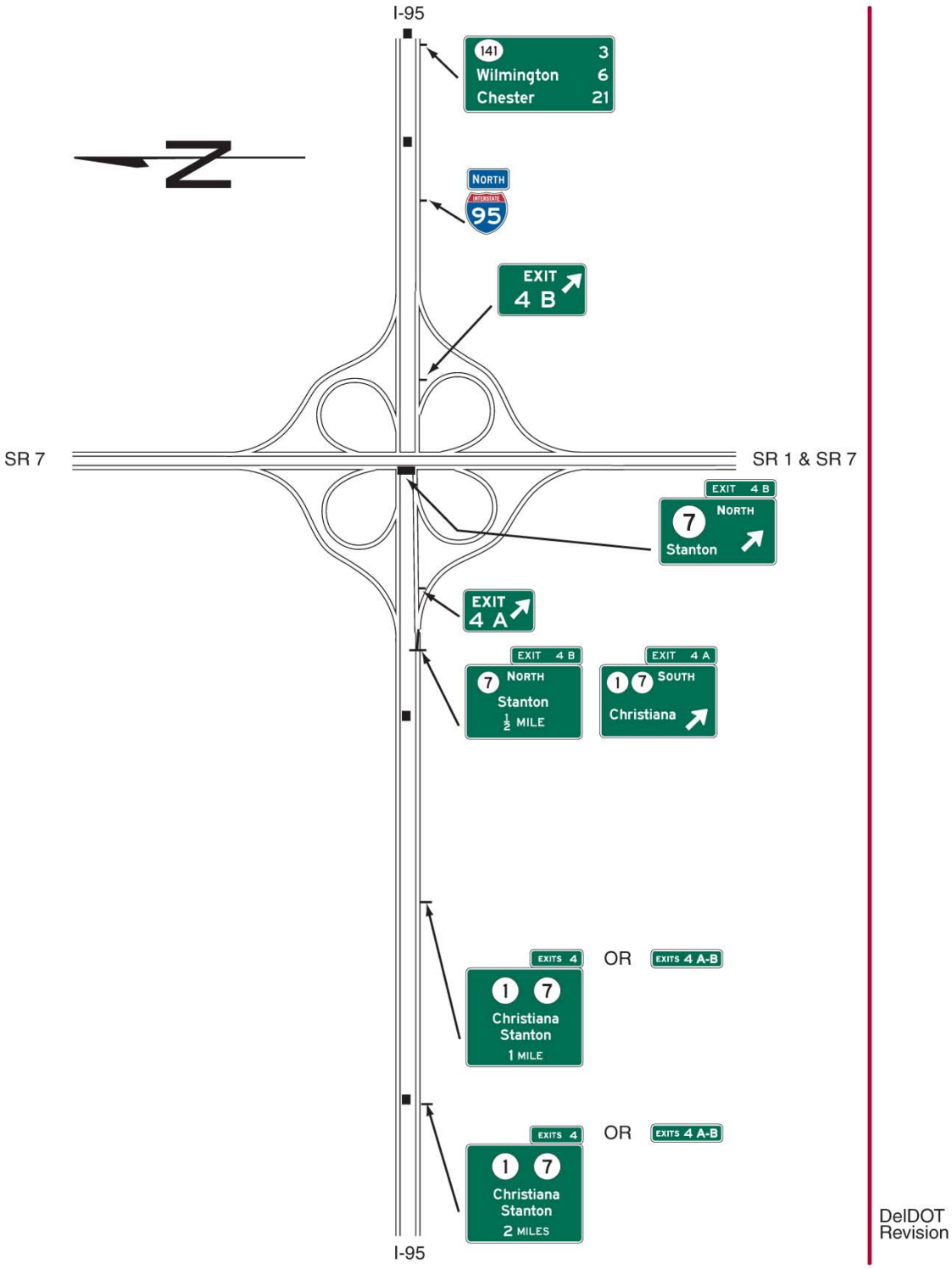
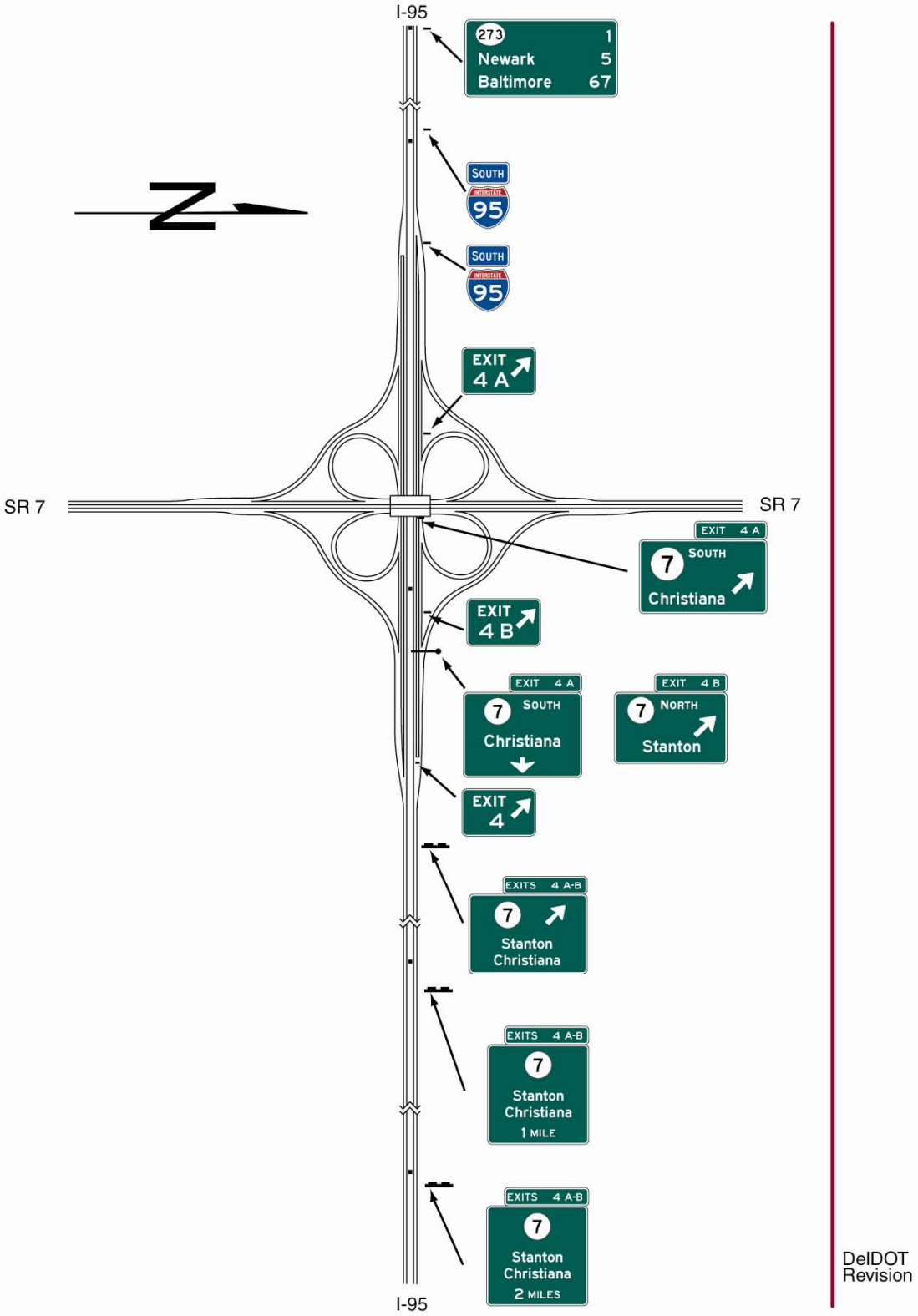
Figure 2E-28. Examples of Guide Signs for Full Cloverleaf Interchange



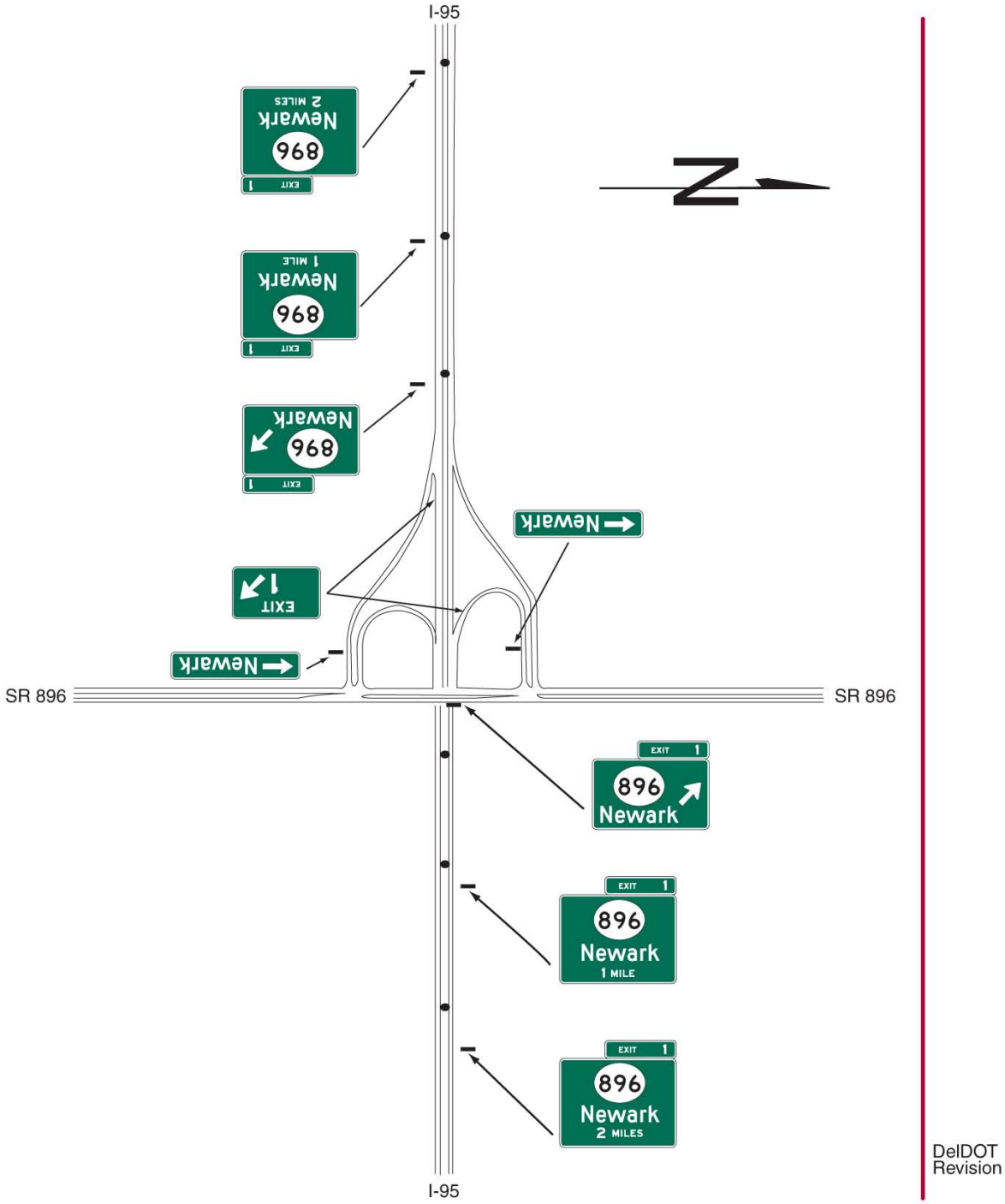
Note: See Figure 2E-38 for examples of multi-lane crossroad signing for cloverleaf interchanges

Figure 2E-29. Examples of Guide Signs for Full Cloverleaf Interchange With Collector-Distributor Roadways



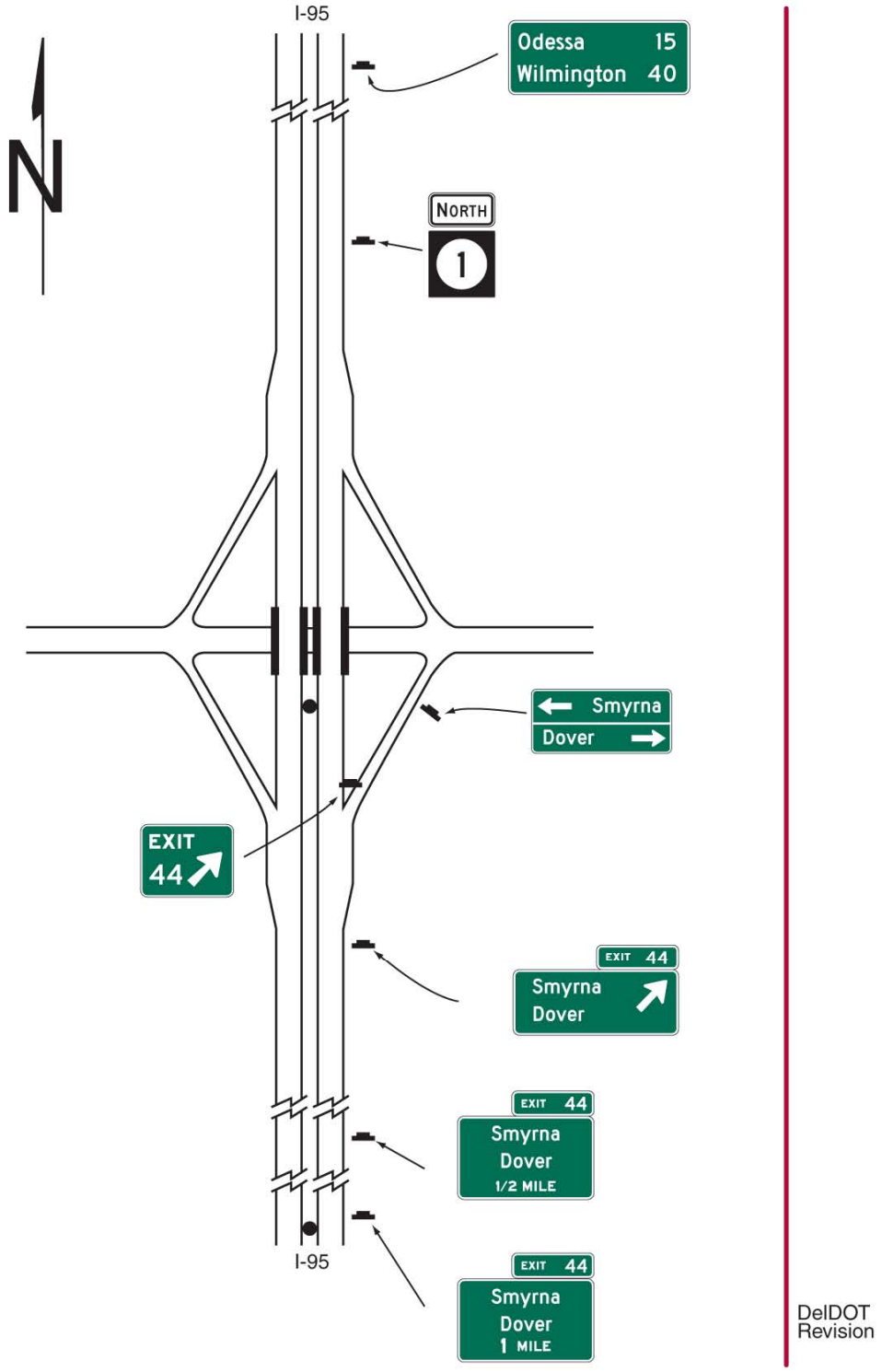
Note: See Figure 2E-38 for examples of multi-lane crossroad signing for cloverleaf interchanges

Figure 2E-30. Examples of Partial Cloverleaf Interchange Guide Signs



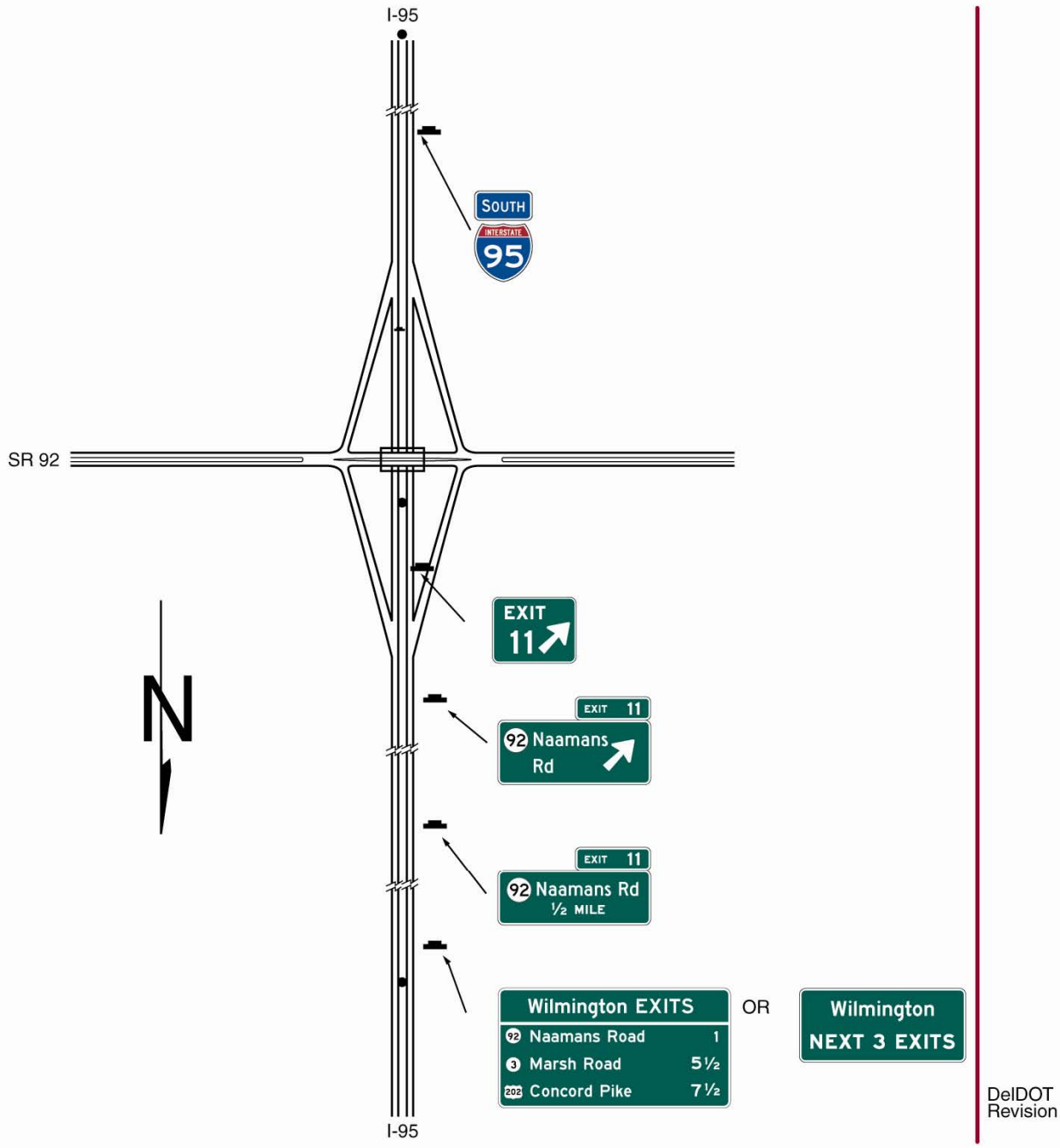
Note: See Figure 2E-37 for examples of multi-lane crossroad signing for partial cloverleaf interchanges

Figure 2E-31. Examples of Diamond Interchange Guide Signs



Note: See Figures 2E-34 and 2E-36 for examples of crossroad signing for one-lane approaches and examples of multi-lane crossroad signing for diamond interchanges

Figure 2E-32. Examples of Diamond Interchange Guide Signs in an Urban Area



Note: See Figures 2E-34 and 2E-36 for examples of crossroad signing for one-lane approaches and examples of multi-lane crossroad signing for diamond interchanges

Standard:

An Overhead Guide sign shall be placed at the theoretical gore point of the first exit ramp, with an upward slanting arrow on the exit direction sign for that exit and the message XX km (XX MILE) on the Advance Guide sign for the second exit, as shown in Figure 2E-28. The second exit shall be indicated by an overhead Exit Direction sign over the auxiliary lane. An Exit sign shall also be used at each gore (see Section 2E.34).

Interchanges with more than one exit from the main line shall be numbered as described in Section 2E.28 with an appropriate suffix.

Diagrammatic signs shall not be used for cloverleaf interchanges.

Guidance:

As shown in Figure 2E-28, the overhead Exit Direction sign for the second exit should be mounted on the structure if the mainline passes under the crossroad and the exit roadway is located beyond the structure.

Section 2E.43 Cloverleaf Interchange with Collector-Distributor Roadways

Support:

Examples of guide signs for full cloverleaf interchanges with collector-distributor roadways are shown in Figure 2E-29.

Guidance:

Signing on the collector-distributor roadways should be the same as the signing on the mainline of a cloverleaf interchange.

Standard:

Guide signs at exits from the collector-distributor roadways shall be overhead and located at the theoretical gore of the collector-distributor roadway and the exit ramp.

Option:

Exits from the collector-distributor roadways may be numbered with an appropriate suffix. The Advance Guide signs may include two place names and their corresponding exit numbers or may use the singular EXIT.

Section 2E.44 Partial Cloverleaf Interchange

Support:

Examples of guide signs for partial cloverleaf interchanges are shown in Figure 2E-30.

Guidance:

As shown in Figure 2E-30, the overhead Exit Direction sign should be placed on the structure if the mainline passes under the crossroad and the exit roadway is located beyond the structure.

Standard:

A ground-mounted Exit Gore sign shall also be installed in the ramp gore.

Section 2E.45 Diamond Interchange

Support:

Examples of guide signs for diamond interchanges are shown in Figure 2E-31.

Standard:

The singular message EXIT shall be used on the Advance Guide and Exit Direction signs. Exit numbers shall not include the cardinal initials corresponding to the direction of the cross route.

Support:

The typical diamond interchange ramp departs from the mainline roadway such that a speed reduction generally is not necessary in order for a driver to reasonably safely negotiate an exit maneuver from the mainline onto the ramp roadway.

Guidance:

When a speed reduction is not necessary, an exit speed sign should not be used.

Option:

An Exit Speed sign may be used where an engineering study shows that it is necessary to display a speed reduction message for ramp signing (see Section 2C.36).

Guidance:

The Exit Speed sign should be located along the deceleration lane or along the ramp such that it is visible to the driver far enough in advance so that a reasonably safe slowing and exiting maneuver can be made.

Option:

A Stop Ahead or Signal Ahead warning sign may be placed, where engineering judgment indicates a need, along the ramp in advance of the cross street, to give notice to the driver (see Section 2C.29).

Guidance:

When used on two-lane ramps, Stop Ahead or Signal Ahead signs should be used in pairs with one sign on each side of the ramp.

Section 2E.46 Diamond Interchange in Urban Area

Support:

Examples of guide signs for diamond interchanges in an urban area are shown in Figure 2E-32. This example includes the use of the Community Interchanges Identification sign (see Section 2E.38) which might be useful if two or more interchanges serve the same community.

In urban areas, street names are often shown as the principal message in destination signs.

Option:

If interchanges are too closely spaced to properly locate the Advance Guide signs, they may be placed closer to the exit, and the distance figures adjusted accordingly.

Section 2E.47 Closely Spaced Interchanges

Option:

When a series of interchanges is closely spaced, the advance guide sign for the next interchange may be mounted on an overhead structure located downstream from the gore of the preceding interchange.

Interchange Sequence signs should be used at closely spaced interchanges. When used, they should identify and show street names and distances for the next two or three exits as shown in Figure 2E-23.

Standard:

Advance Guide signs for closely spaced interchanges shall show information for only one interchange.

Section 2E.48 Minor Interchange

Option:

Less signing may be used for minor interchanges because such interchanges customarily serve low volumes of local traffic.

Support:

Examples of guide signs for minor interchanges are shown in Figure 2E-33.

Standard:

At least one Advance Guide sign and an Exit Gore sign shall be placed at a minor interchange.

Guidance:

An Exit Direction sign should also be used.

Section 2E.49 Signing of Approaches and Connecting Roadways

Support:

Because there are a number of different ramp configurations that are commonly used at interchanges with conventional roads, drivers on the conventional road cannot reliably predict whether they will be required to turn left or right in order to enter the correct ramp to access the freeway or expressway in the desired direction of travel. Consistently applied signing for conventional road approaches to freeway or expressway interchanges is highly desirable.

Guidance:

The signing of conventional roads with one lane of traffic approaching an interchange should consist of a sequence containing the following signs (see Figure 2E-34):

A. Junction Assembly
B. Destination sign
C. Directional Assembly or Entrance Direction sign for the first ramp
D. Advance Route Turn Assembly or Advance Entrance Direction sign with an advance turn arrow
E. Directional Assembly or Entrance Direction sign for the second ramp

Standard:

If used, the Entrance Direction sign shall consist of a white legend and border on a green background. It shall contain the freeway or expressway route shield(s), cardinal direction, and directional arrow(s).

Option:

The Entrance Direction sign may contain a destination(s) and/or an action message such as NEXT RIGHT.

At minor interchanges, the following sequence of signs may be used (see Figure 2E-35):

A. Junction Assembly
B. Directional Assembly for the first ramp
C. Directional Assembly for the second ramp

Guidance:

On multi-lane conventional roads approaching an interchange, the sign sequence should contain the following signs (see Figures 2E-36, 2E-37, and 2E-38):

A. Junction Assembly
B. Advance Entrance Direction sign(s) for both directions (if applicable) of travel on the freeway or expressway
C. Entrance Direction sign for first ramp
D. Advance Turn Assembly
E. Entrance Direction sign for the second ramp

Support:

Advance Entrance signs are used to direct road users to the appropriate lane(s).

Standard:

The Advance Entrance sign shall consist of a white legend and border on a green background. It shall contain the freeway or expressway route shield(s) and cardinal direction(s).

Option:

The Advance Entrance sign may have destinations, directional arrows, and/or an action message such as LEFT LANE, NEXT LEFT, or SECOND RIGHT. Signs in this sequence may be mounted overhead to improve visibility.

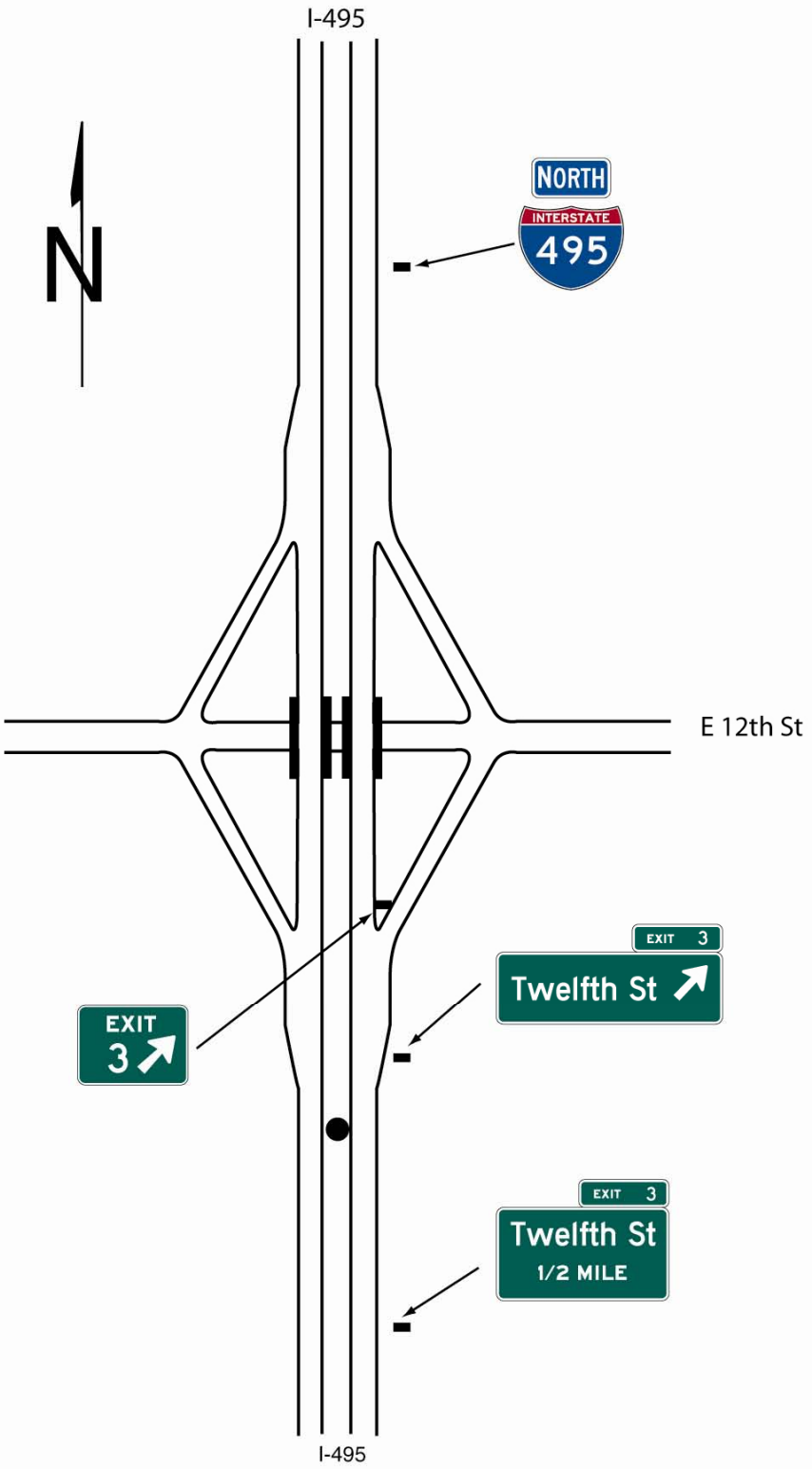
Section 2E.50 <u>Wrong-Way Traffic Control at Interchange Ramps</u>

Standard:

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 2E-39):

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 end of the exit ramp in positions appropriate for full view of a road user starting to enter wrongly.
C. At least one WRONG WAY sign shall be placed on the exit ramp facing a road user traveling in the wrong direction.

Figure 2E-33. Examples of Minor Interchange Guide Signs



Note: See Figure 2E-35 for example of minor interchange crossroad signing

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Figure 2E-34. Example of Crossroad Signing for One-Lane Approach

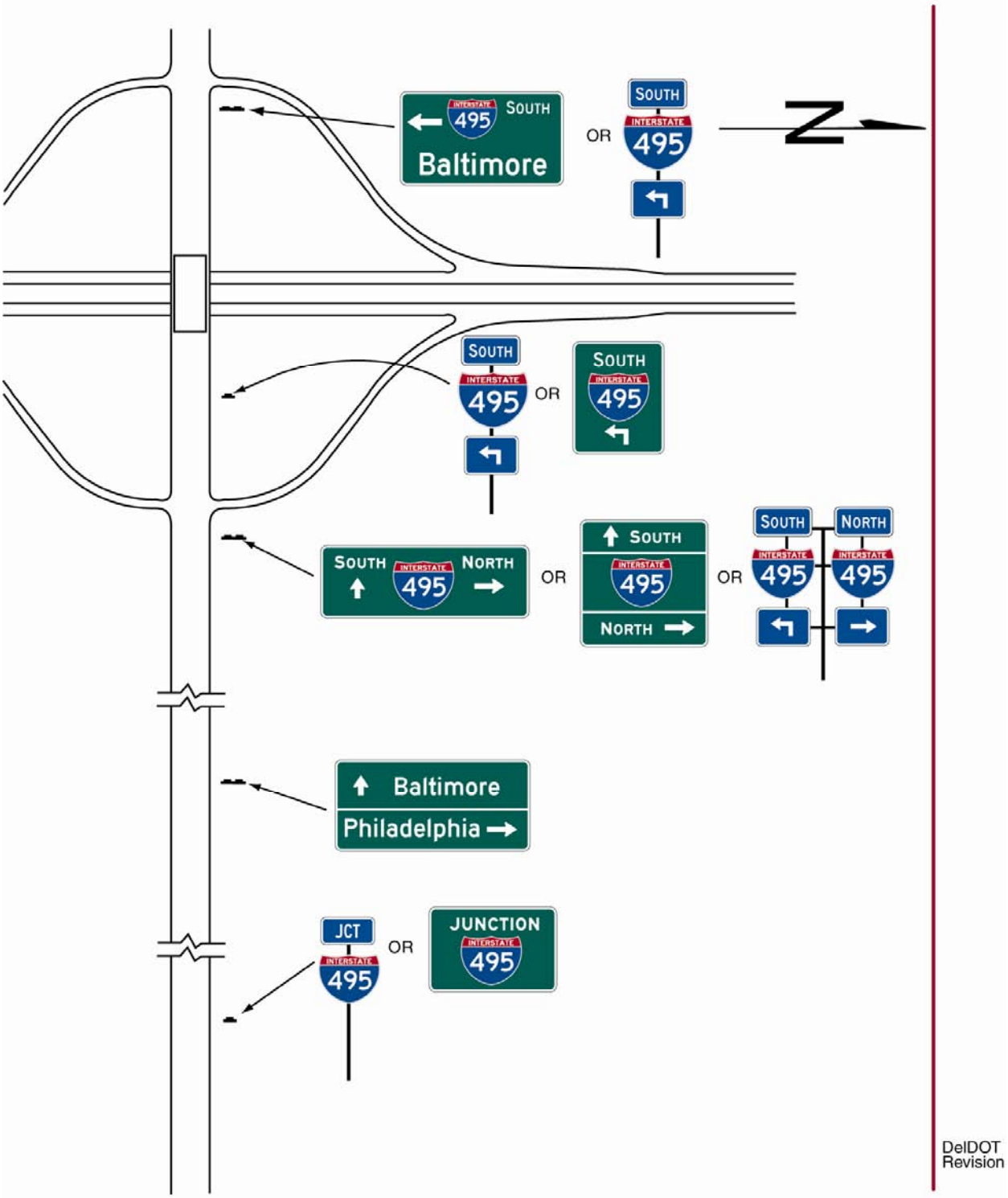

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Figure 2E-35. Example of Minor Interchange Crossroad Signing

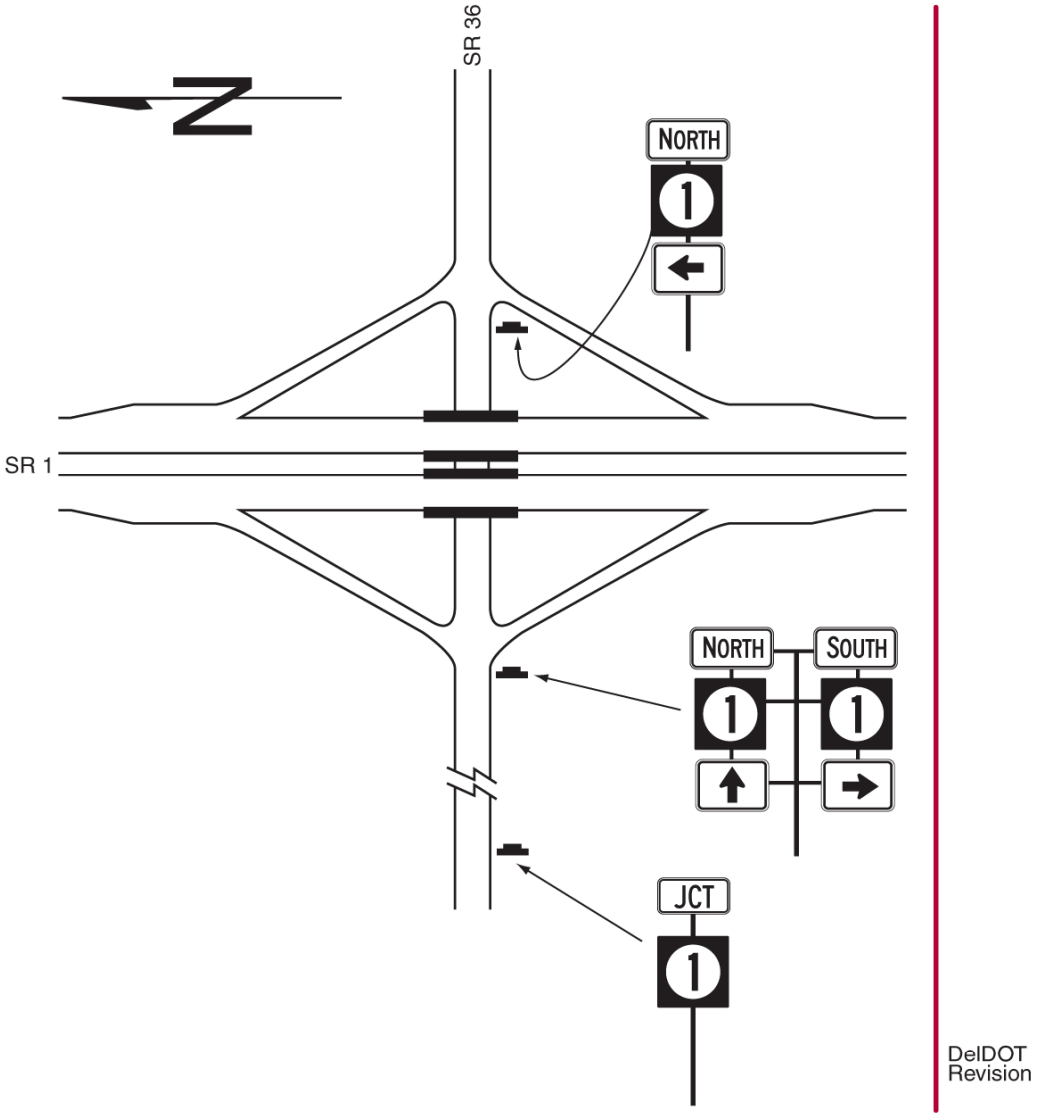

Figure 2E-36. Examples of Multi-lane Crossroad Signing for Diamond Interchange

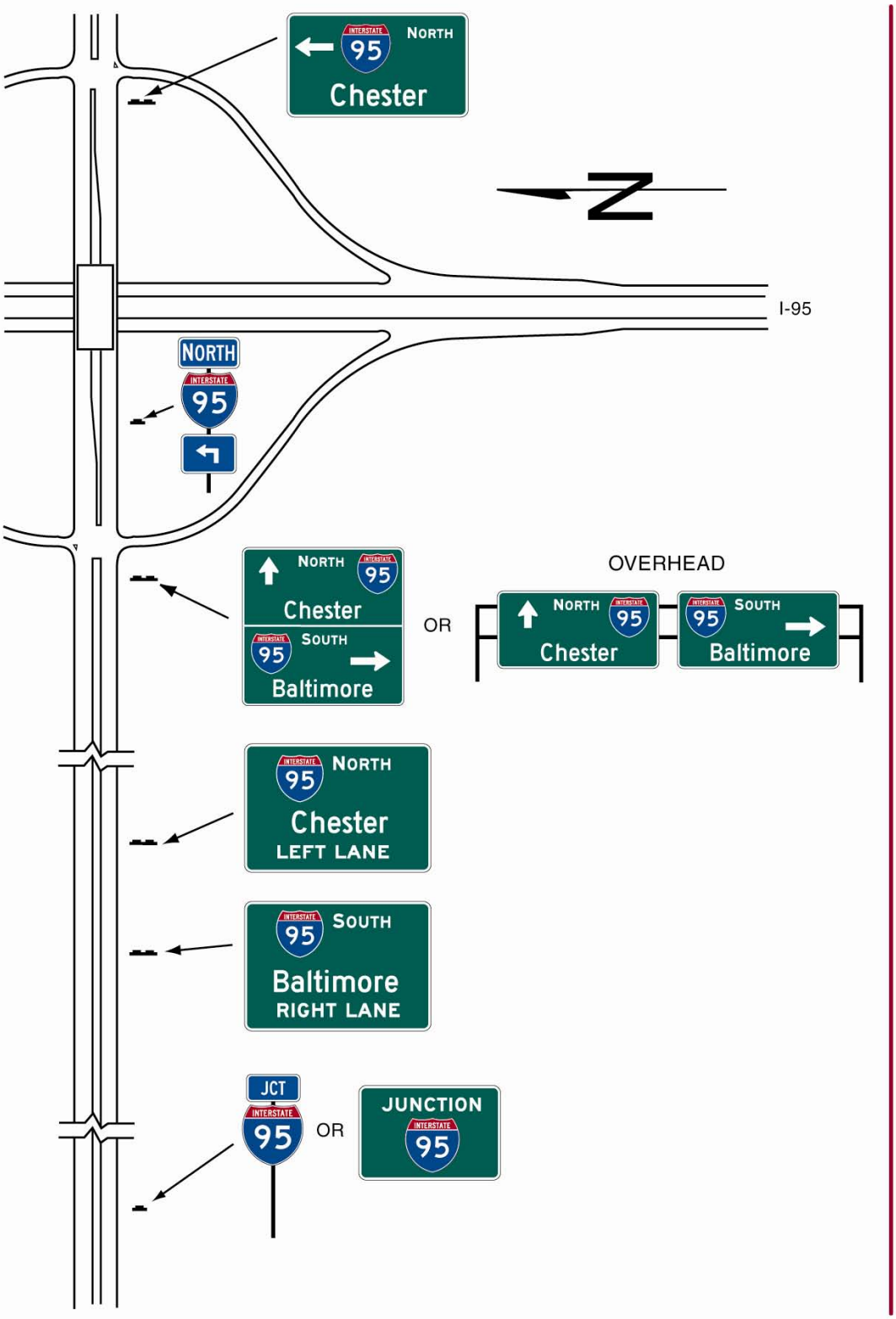

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Figure 2E-37. Examples of Multi-lane Crossroad Signing for Partial Cloverleaf Interchange

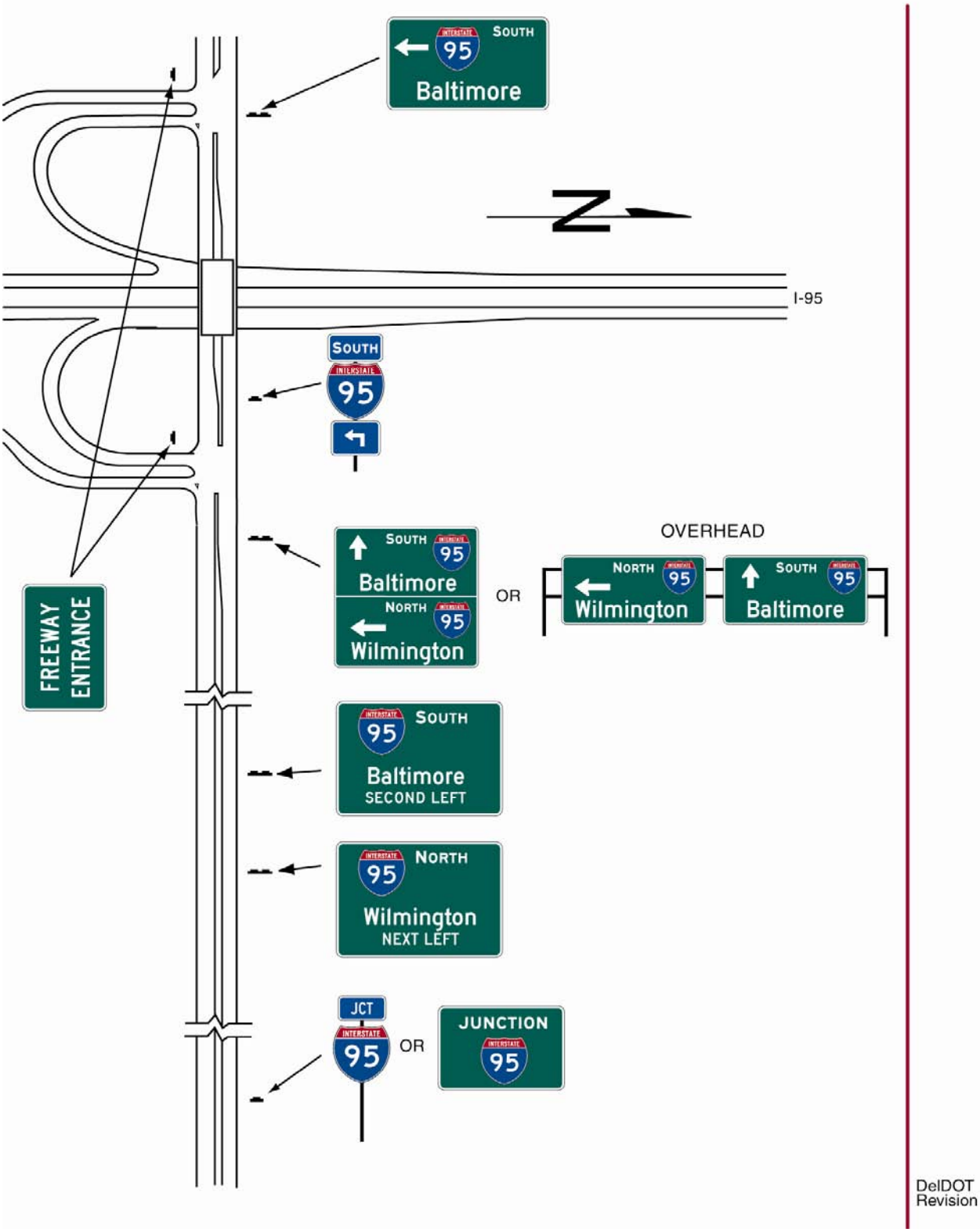
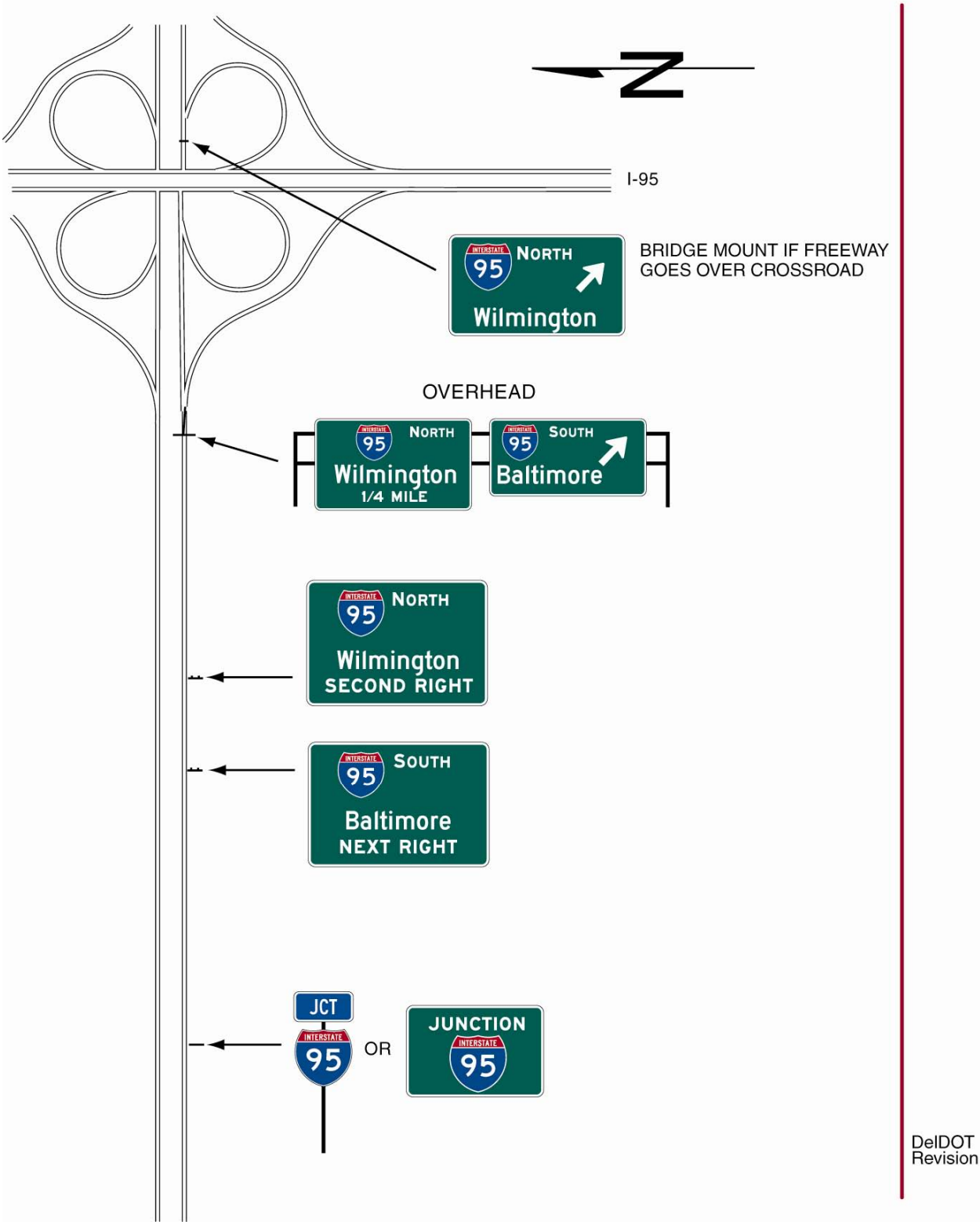


Figure 2E-38. Examples of Multi-lane Crossroad Signing for Cloverleaf Interchange



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Guidance:

In addition, the following pavement markings should be used (see Figure 2E-39):

A. On two-lane paved crossroads at interchanges, double solid yellow lines should be used as a centerline for an adequate distance on both sides approaching the ramp intersections.
B. Where crossroad channelization or ramp geometrics do not make wrong-way movements difficult, a lane-use arrow should be placed in each lane of an exit ramp near the crossroad terminal where it will be clearly visible to a potential wrong-way road user.

Option:

The following traffic control devices may be used to supplement the above signs and pavement markings:

A. Additional ONE WAY signs may be placed, especially on two-lane rural crossroads, appropriately in advance of the ramp intersection to supplement the required ONE WAY sign(s).
B. Additional WRONG WAY signs may be used.
C. Slender, elongated wrong-way arrow pavement markings (see Figure 3B-21) intended primarily to warn wrong-way road users that they are traveling in the wrong direction may be placed upstream from the ramp terminus (see Figure 2E-39) to indicate the correct direction of traffic flow. Wrong-way arrow pavement markings may also be placed on the exit ramp at appropriate locations near the crossroad junction to indicate wrong-way movement. The wrong-way arrow markings may consist of pavement markings or bidirectional red-and-white raised pavement markers or other units that show red to wrong-way road users and white to other road users (see Figure 3B-21).
D. Lane-use arrow pavement markings may be placed on the exit ramp and crossroad near their intersection to indicate the permissive direction of flow.
E. Guide signs may be used on entrance ramps near the crossroad to inform road users of the freeway or expressway entrance, as appropriate (see Figure 2E-37).

Guidance:

On interchange entrance ramps where the ramp merges with the through roadway and the design of the interchange does not clearly make evident the direction of traffic on the separate roadways or ramps, a ONE WAY sign visible to traffic on the entrance ramp and through roadway should be placed on each side of the through roadway near the entrance ramp merging point as illustrated in Figure 2E-40.

Option:

At locations where engineering judgment determines that a special need exists, other standard warning or prohibitive methods and devices may be used as a deterrent to the wrong-way movement.

Support:

Section 2B.35 contains further information on signing to avoid wrong-way movements at at-grade intersections on expressways.

Section 2E.51 <u>General Service Signs</u>

Support:

General Service signs (see Figure 2D-11) are generally not appropriate at major interchanges (see Section 2E.29 for definition) and in urban areas.

Option:

If interchanges are not numbered, an action message such as NEXT EXIT or SECOND RIGHT may be used (see Figure 2E-41).

Standard:

General Service signs shall have white letters, symbols, and borders on a blue background. Letter and numeral sizes shall conform to the minimum requirements of Tables 2E-1 through 2E-4. All approved symbols shall be permitted as alternatives to word messages, but symbols and word service messages shall not be intermixed. If the services are not visible from the ramp of a single-exit interchange, the service signing shall be repeated in smaller size at the intersection of the exit ramp and the crossroad. Such service signs shall use arrows to indicate the direction to the services.

Guidance:

Distance to services should be shown on General Service signs where distances are more than 2 km or 1 mile.

General Service signing should only be provided at locations where the road user can return to the freeway or expressway and continue in the same direction of travel.

Only services that fulfill the needs of the road user should be shown on General Service signs. The following criteria should be considered when installing general service signs:

A. Gas and Diesel, if all of the following are available:
   1. Vehicle services such as gas, oil, and water;
   2. Modern sanitary facilities and drinking water;
   3. Continuous operations at least 16 hours per day, 7 days per week; and
   4. Public telephone.
B. Food if all of the following are available:
   1. Licensing or approval, where required;
   2. Continuous operation to serve at least two meals per day, at least 6 days per week;
   3. Public telephone; and
   4. Modern sanitary facilities.
C. Lodging if all of the following are available:
   1. Licensing or approval, where required;
   2. Adequate sleeping accommodations;
   3. Public telephone; and
D. Public Telephone if continuous operation, 7 days per week is available.
E. Hospital if continuous emergency care capability, with a physician on duty 24 hours per day, 7 days per week is available. A physician on duty would include the following criteria and should be signed in accordance with the priority as follows:
   1. Physician on duty within the emergency department;
   2. Registered nurse on duty within the emergency department, with a physician in the hospital on call; or
   3. Registered nurse on duty within the emergency department, with a physician on call from office or home.
F. Camping if all of the following are available:
   1. Licensing or approval, where required;
   2. Adequate parking accommodations; and
   3. Modern sanitary facilities and drinking water.

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Standard:

For any service that is operated on a seasonal basis only, the General Service signs shall be removed during periods when the service is not available.

The General Service signs shall be mounted in an effective location, between the Advance Guide sign and the Exit Direction sign, in advance of the exit leading to the available services.

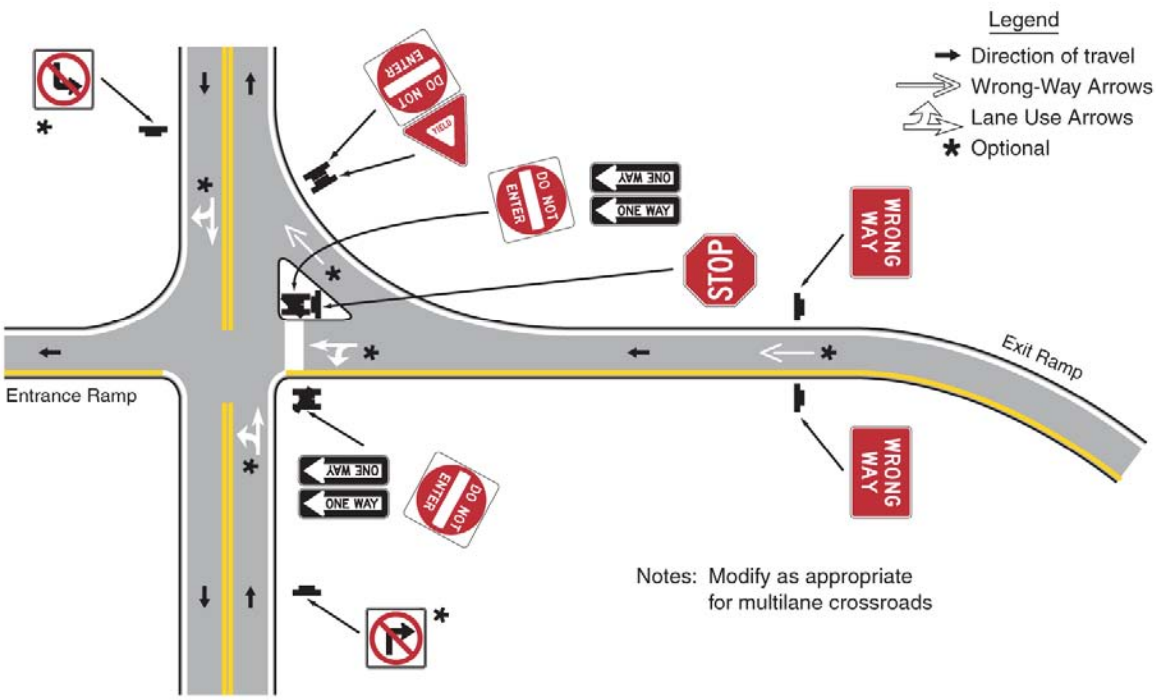
Guidance:

The General Service sign should contain the interchange number, if any, as illustrated in Figure 2E-42.

Option:

If the distance to the next point where services are available is greater than 16 km (10 miles), a NEXT SERVICES XX km (XX MILES) (D9-17) sign (see Figure 2E-43), may be used as a separate sign panel installed below the Exit Direction sign.

Figure 2E-39. Examples of Regulatory Signing and Pavement Markings at Exit Ramp Termination to Deter Wrong-Way Entry



Standard:

Signs for services shall conform to the format for General Service signs (see Section 2D.45) and as specified herein. Letter and numeral sizes shall be as shown in Tables 2E-1 through 2E-4. No more than six general road user services shall be displayed on one sign, which includes any appended sign panels. General Service signs shall carry the legends for one or more of the following services: Food, Gas, Lodging, Camping, Phone, Hospital, or Tourist Information. **DelDOT Rev.**

The qualified services available shall be shown at specific locations on the sign.

To provide flexibility for the future when the service might become available, the sign space normally reserved for a given service symbol or word shall be left blank when that service is not present.

Guidance:

The standard display of word messages should be FOOD and PHONE in that order on the top line, and GAS and LODGING on the second line. If used, HOSPITAL and CAMPING should be on separate lines (see Figure 2E-42).

Option:

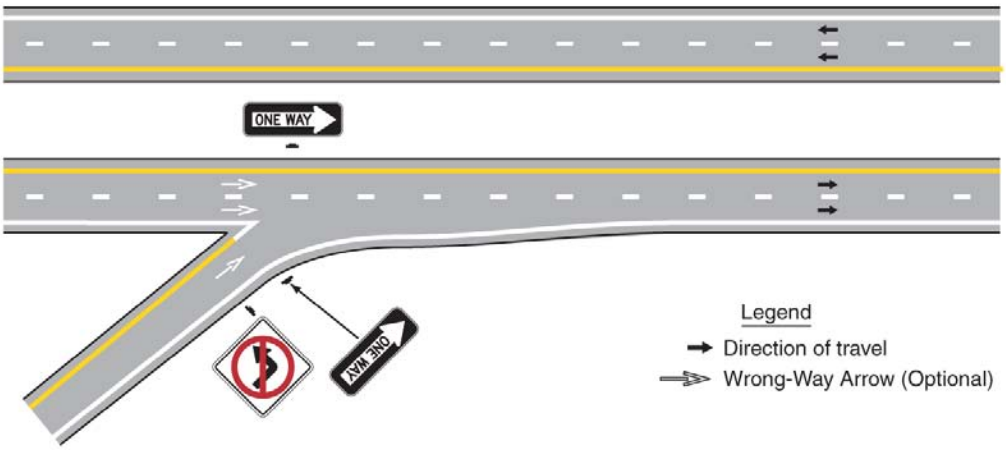
The International Symbol of Accessibility for the Handicapped (D9-6) sign may be used for facilities that qualify. **DelDOT Rev.**

Guidance:

When symbols are used for the road user services, they should be displayed as follows:

A. Six services:
   1. Top row—GAS, FOOD, and LODGING
   2. Bottom row—PHONE, HOSPITAL, and CAMPING
B. Four services:
   1. Top row—GAS and FOOD
   2. Bottom row—LODGING and PHONE
C. Three services:
   1. Top row—GAS, FOOD, and LODGING

Figure 2E-40. Examples of Regulatory Signing and Pavement Markings at Entrance Ramp Terminal Where Design Does Not Clearly Indicate the Direction of Flow



Option:

Substitutions of other services for any of the services shown above may be made by placing the substitution in the lower right (four or six services) or extreme right (three services) portion of the sign panel. An action message or an interchange number may be used for symbol signs in the same manner as they are used for word message signs. The Tourist Information (D9-10) symbol may be substituted on any of the above configurations in the last position. **DelDOT Rev.**

At rural interchange areas where limited road user services are available and where it is unlikely that additional services will be provided within the near future, a sign panel having one to three services (words or symbols) may be appended to ground mounted interchange guide signs.

Standard:

If more than three services become available at rural interchange areas where limited road user services were anticipated, any appended sign panel shall be removed and replaced with an independently mounted General Service sign as described in this Section.

Option:

A separate Telephone Service (D9-1) sign may be installed if telephone facilities are located adjacent to the route at places where public telephones would not normally be expected.

In some locations, signs may be used to indicate that services are not available.

Section 2E.52 <u>Rest Area Signs</u>

Guidance:

Signing for rest areas should conform to the provisions set forth in Sections 2D.42 and 2D.43. However, the signs should be suitably enlarged for freeway or expressway application. A roadside area that does not contain restroom facilities should be signed to indicate the major road user service that is provided. **DelDOT Rev.**

Standard:

All signs for rest areas shall have white letters, symbols, and borders on a blue background. Letter and numeral sizes shall conform to the minimum requirements of Tables 2E-1 through 2E-4. On the approach to rest areas, a REST AREA advance guide sign shall be placed 2 km or 1 mile and/or 4 km or 2 miles in advance of the rest area. At the rest area exit gore, there shall be a sign with a message REST AREA together with an arrow indicating the appropriate turn as shown in Figure 2E-44.

Figure 2E-41. Examples of General Service Signs (without Exit Numbering)

D9-18e

D9-18

E2-2

Figure 2E-42. Examples of General Service Signs (with Exit Numbering)

D9-18a

D9-18

E2-3

Figure 2E-43. Example of Next Services Sign

D9-17

Option:

If the rest area has facilities for the physically impaired (see Section 2D.45), the International Symbol of Accessibility for the Handicapped (D9-6) sign may be placed with or beneath the REST AREA advance guide sign.

Between the REST AREA advance guide sign and the gore of the rest area exit, there may be a REST AREA (D5-1b) sign (see Figure 2E-44). The words NEXT RIGHT (E2-2) or an arrow may be included as part of the message.

Section 2E.53 Tourist Information and Welcome Center Signs

Standard:

Tourist Information and Welcome Center signs are not to be used on Delaware roadways unless approved by DelDOT's Chief Traffic Engineer or a designee.

Section 2E.54 Reference Location Signs

Support:

Reference Location (D10-1 through D10-3) signs and their applications are described in Section 2D.46.

DelDOT Rev.

Standard:

Reference Location (D10-1 through D10-3) signs (see Section 2D.46) shall be placed on all expressway facilities that are located on a route where there is reference location sign continuity and on all freeway facilities to assist road users in estimating their progress, to provide a means for identifying the location of emergency incidents and traffic crashes, and to aid in highway maintenance and servicing.

Section 2E.55 Miscellaneous Guide Signs

Support:

Miscellaneous Guide signs are used to point out geographical features, such as rivers and summits, and other jurisdictional boundaries (see Section 2D.48).

Option:

Miscellaneous Guide signs may be used if they do not interfere with signing for interchanges or other critical points.

Figure 2E-44. Examples of Rest Area Signs

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Figure 2E-45. Enhanced Reference Location Signs (NOT APPLICABLE IN DELAWARE)

Guidance:

Miscellaneous Guide signs should not be installed unless there are specific reasons for orienting the road users or identifying control points for activities that are clearly in the public interest. If Miscellaneous Guide signs are to be of value to the road user, they should be consistent with other freeway or expressway guide signs in design and legibility. On all such signs, the design should be simple and dignified, devoid of any tendency toward flamboyant advertising, and in general conformance with other freeway and expressway signing.

Section 2E.56 Radio Information Signing

Option:

Radio-Traffic Information (D12-1-DE) signs (See Figure 2D-12) may be used in conjunction with traffic management systems.

Standard:

No more than three frequencies shall be shown on each Radio-Traffic Information sign. Only radio stations whose signal will be of value to the road user and who agree to broadcast driving condition information (affecting the roadway being traveled) at a rate of at least once every 15 minutes, or when required, during periods of adverse traffic conditions, and when supplied by an official agency having jurisdiction shall be identified on Radio-Traffic Information signs. **DelDOT Rev.**

If a station to be considered operates only on a seasonal basis, its signs shall be removed or covered during the off season.

Guidance:

The radio station should have a signal strength to adequately broadcast 110 km (70 mi) along the route. Signs should be spaced as needed for each direction of travel at distances determined by an engineering study. The stations to be included on the signs should be selected in cooperation with the association(s) representing major broadcasting stations in the area to provide: (1) maximum coverage to all road users on both AM and FM frequencies; and (2) consideration of 24 hours per day, 7 days per week broadcast capability.

Option:

In roadway rest area locations, a smaller sign using a greater number of radio frequencies, but of the same general design, may be used.

Standard:

Radio-Traffic Information signs installed in rest areas shall be positioned such that they are not visible from the main roadway. **DelDOT Rev.**

Section 2E.57 Carpool and Ridesharing Signing

Option:

In areas having carpool matching services, Carpool Information (D12-2-DE) signs (see Figure 2D-12) may be provided adjacent to highways with preferential lanes or along any other highway. **DelDOT Rev.**

Carpool Information signs may include Internet addresses or telephone numbers of more than four characters within the legend.

Guidance:

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:

If a local transit logo or carpool symbol is incorporated into the Carpool Information sign, the maximum vertical dimension of the logo or symbol shall not exceed 450 mm (18 in).

Section 2E.58 Weigh Station Signing

Standard:

Weigh Station signing on freeways and expressways shall be the same as that specified in Section 2D.44, except for lettering size and the advance posting distance for the Exit Direction sign, which shall be located a minimum of 450 m (1,500 ft) in advance of the gore.

Support:

Weigh Station sign layouts for freeway and expressway applications are shown in the "Standard Highway Signs" book (see Section 1A.11).

Section 2E.59 Preferential Only Lane Signs

Standard:

Preferential Only Lane Signs are not to be used on Delaware roadways unless approved by DelDOT's Chief Traffic Engineer or a designee. **DelDOT Rev.**

Figure 2E-46 through 2E.52. Examples of Signing for HOV Lanes (NOT APPLICABLE IN DELAWARE)

CHAPTER 2F. SPECIFIC SERVICE SIGNS

Section 2F.01 Eligibility

Support:

The Travel Services (Logo) Program permits eligible businesses providing motorists services to place their logos on signs along limited access highways in Delaware. This program is administered by DelDOT and the Delaware State Tourism Office.

Standard:

Specific Service signs, known as Travel Service (Logo) signs in Delaware, shall be defined as guide signs that provide road users with business identification and directional information for services. See Chapter 2H for guidance on signing for Attractions in Delaware.

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Guidance:

The use of Specific Service signs should be limited to areas primarily rural in character or to areas where adequate sign spacing can be maintained.

Standard:

Specific Service signs may be used on limited access highways only.

DelDOT Rev.

Guidance:

Specific Service signs should not be installed at an interchange where the road user cannot conveniently reenter the freeway or expressway and continue in the same direction of travel.

Standard:

Eligible service facilities shall comply with laws concerning the provisions of public accommodations without regard to race, religion, color, age, sex, or national origin, and laws concerning the licensing and approval of service facilities.

GAS facilities shall be located within 1 mile traveling distance from the interchange or intersection where the sign is to be erected. FOOD and LODGING facilities shall be located within 3 miles traveling distance from the interchange or intersection where the sign is to be erected. CAMPING facilities shall be located within 7 miles traveling distance from the interchange or intersection where the sign is to be erected.

Installation of Specific Service signing shall consider the availability of the various types of services as established by DelDOT and the Delaware Tourism Office. Minimum required services include:

A. To qualify for a GAS logo panel, a business shall have:
   1. Vehicle services including gas and/or alternative fuels, oil, water, and information on tire/repair services;
   2. Clean public restrooms;
   4. Continuous operation at least 14 hours per day, 7 days per week; and
   5. Public telephone.

B. To qualify for a FOOD logo panel, a business shall have:
   1. Approved state health and business licenses and certificates on display;
   2. Continuous operations at least 12 hours per day, 7 days per week, opening at 7AM;
   3. Three meals per day;
   4. Seats 20 or more; and
   5. Public telephone

C. To qualify for a LODGING logo panel, a business shall have:
   1. Approved state health and business licenses and certificates on display;
   2. At least 25 rooms; and
   3. Open year round and open for check-in 24 hours per day, 7 days per week

D. To qualify for a CAMPING logo panel, a business shall have:
   1. Approved state health and business licenses and certificates on display;
   2. Adequate parking accommodations; and
   3. Modern sanitary facilities and drinking water.

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Refer to DelDOT's Travel Services (Logo) Program guidelines for additional guidance.

Section 2F.02 Application

Standard:

The number of Specific Service signs along an approach to an interchange or intersection, regardless of the number of service types displayed, shall be limited to a maximum of four. In the direction of traffic, successive Specific Service signs shall be for camping, lodging, food, and gas services, in that order.

A Specific Service sign shall display the word message GAS, FOOD, LODGING, or CAMPING, an appropriate directional legend such as the word message EXIT XX, NEXT RIGHT, SECOND RIGHT, or directional arrows, and the related logo sign panels. No more than three types of services shall be represented on any sign or sign assembly. If three types of services are shown on one sign, then the logo panels shall be limited to two for each service (for a total of six logo panels). The legend and logo panels applicable to a service type shall be displayed such that the road user will not associate them with another service type on the same sign. No service type shall appear on more than one sign. The signs shall have a blue background, a white border, and white legends of upper-case letters, numbers, and arrows. **DelDOT Rev.**

Guidance:

The Specific Service signs should be located to take advantage of natural terrain, to have the least impact on the scenic environment, and to avoid visual conflict with other signs within the highway right-of-way.

Option:

General Service signs (see Section 2D.45 and 2E.51) may be used in conjunction with Specific Service signs for eligible types of services that are not represented by a Specific Service sign. **DelDOT Rev.**

Support:

Examples of Specific Service signs are shown in Figure 2F-1. Examples of sign locations are shown in Figure 2F-2. Refer to DelDOT's Travel Services (Logo) Program guidelines for additional guidance.

Section 2F.03 Logos and Logo Panels

Standard:

A logo shall be either an identification symbol/trademark or a word message. Each logo shall be placed on a separate logo panel which shall be attached to the Specific Service sign. Symbols or trademarks used alone for a logo shall be reproduced in the colors and general shape consistent with customary use, and any integral legend shall be in proportionate size. A logo that resembles an official traffic control device shall not be used.

Guidance:

A word message logo, not using a symbol or trademark, should have a blue background with white legend and border.

Option:

Where business identification symbols or trademarks are used alone for a logo, the border may be omitted from the logo panel.

A portion at the bottom of a GAS logo panel may be used to display the legends for alternative fuels (see Section 2E.51) available at the facility. A portion at the bottom of a FOOD logo panel may be used to display the word CLOSED and the day of the week when the facility is closed.

Section 2F.04 Number and Size of Logos and Signs

Guidance:

Sign sizes should be determined by the amount and height of legend and the number and size of logo panels attached to the sign. All logo panels on a sign should be the same size.

Standard:

Each Specific Service sign or sign assembly shall be limited to no more than six logo panels. There shall be no more than four logo panels for one of the two service types on the same sign or sign assembly.

Support:

Section 2F.08 contains information regarding Specific Service signs for double-exit interchanges.

Standard:

Each logo panel attached to a Specific Service sign shall have a rectangular shape with a width longer than the height. A logo panel for gas signs on the mainline shall be 1200 mm (48 in) in width and 900 mm (36 in) in height. A logo panel for food, lodging, and camping signs on the mainline shall be 1500 mm (60 in) in width and 900 mm (36 in) in height. A logo panel for gas signs on ramps and crossroads shall be 600 mm (24 in) in width and 450 mm (18 in) in height. A logo panel for food, lodging, and camping signs on ramps and crossroads shall be 750 mm (30 in) in width and 450 mm (18 in) in height. The vertical and horizontal spacing between logo panels shall not exceed 200 mm (8 in) and 300 mm (12 in), respectively.

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Support:

Sections 2A.15, 2E.14, and 2E.15 and DelDOT's Travel Services (Logo) Program guidelines contain information regarding borders, interline spacing, and edge spacing.

Section 2F.05 <u>Size of Lettering</u>

Standard:

All letters and numerals on Specific Service signs, except on the logo panels, shall be a minimum height of 250 mm (10 in) for signs on the mainline, and 150 mm (6 in) for signs on crossroads and ramps. Refer to DelDOT's Travel Services (Logo) guidelines for additional guidance.

Guidance:

Any legend on a symbol/trademark should be proportional to the size of the symbol/trademark.

Figure 2F-1. Examples of Specific Service Signs

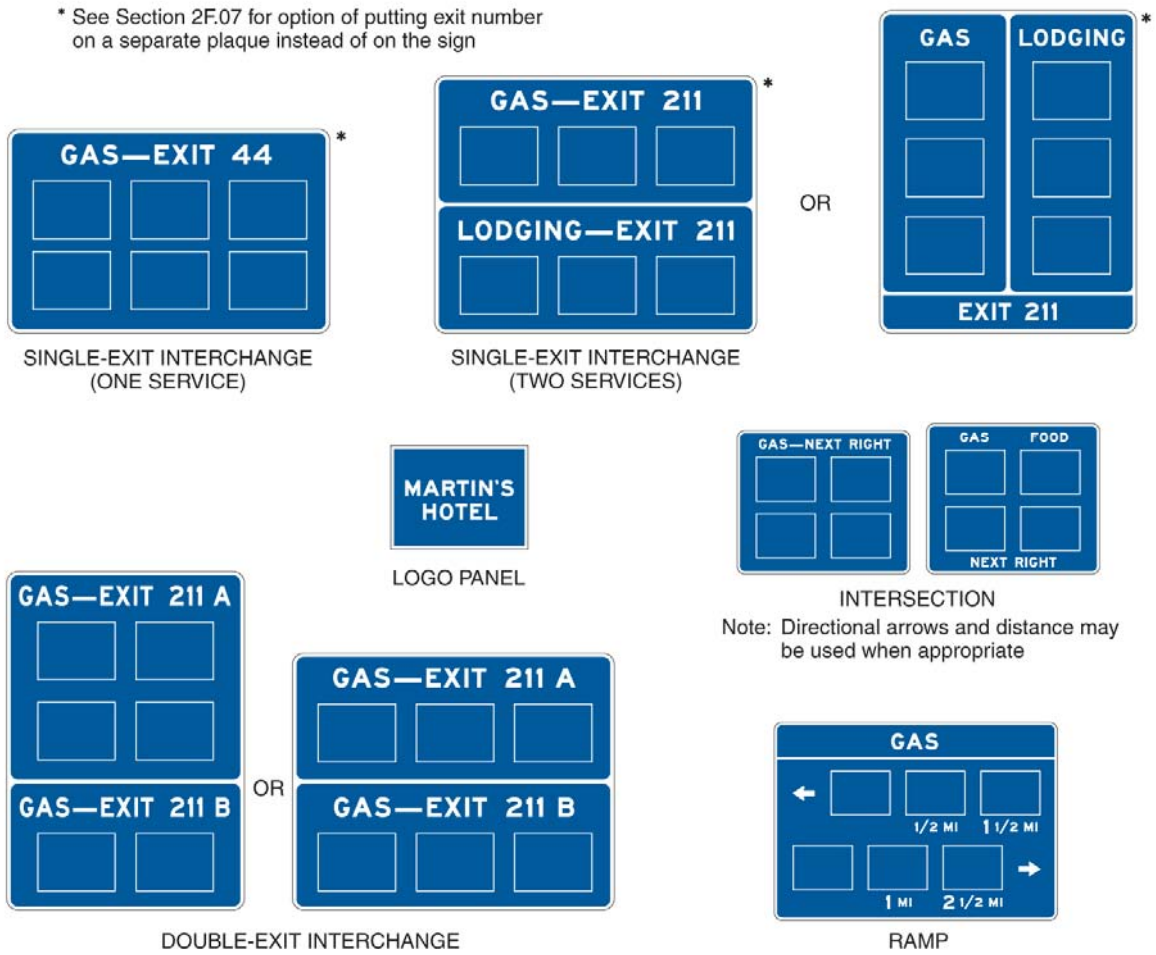
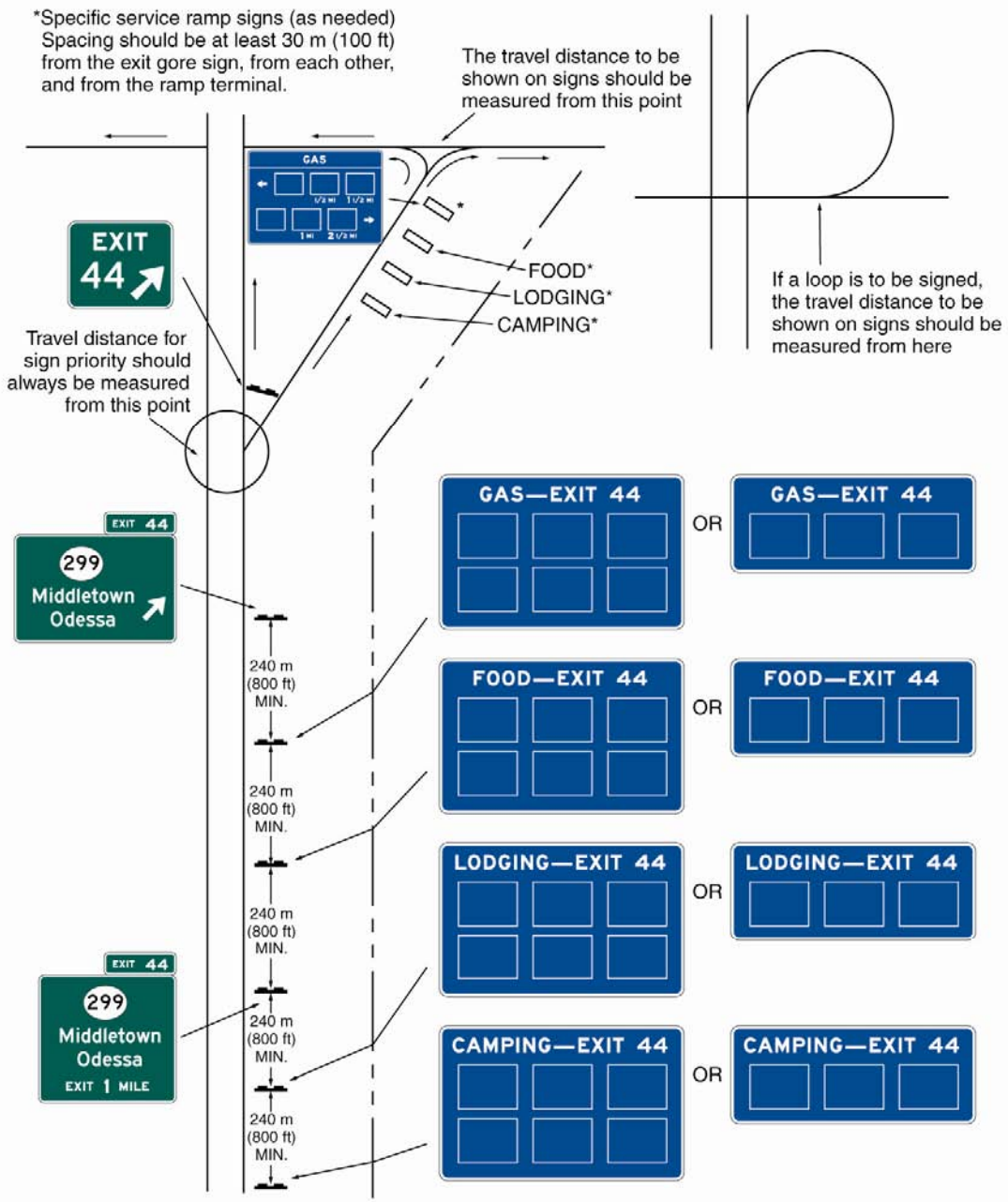


Figure 2F-2. Examples of Specific Service Sign Locations



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Section 2F.06 Signs at Interchanges

Standard:

The Specific Service signs shall be installed between the previous interchange and at least 245 m (800 ft) in advance of the Exit Direction sign at the interchange from which the services are available (see Figure 2F-2).

Guidance:

There should be at least a 245 m (800 ft) spacing between the Specific Service signs, except for Specific Service ramp signs. However, excessive spacing is not desirable. Specific Service ramp signs should be spaced at least 30 m (100 ft) from the exit gore sign, from each other, and from the ramp terminal.

Section 2F.07 Single-Exit Interchanges

Standard:

At single-exit interchanges, the name of the service type followed by the exit number shall be displayed on one line above the logo panels. At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT) shall be used.

At single-exit interchanges, Specific Service ramp signs shall be installed along the ramp or at the ramp terminal for facilities that have logo panels displayed along the main roadway if the facilities are not readily visible from the ramp terminal. Directions to the service facilities shall be indicated by arrows on the ramp signs. Logo panels on Specific Service ramp signs shall be duplicates of those displayed on the Specific Service signs located in advance of the interchange, but shall be reduced in size.

Guidance:

Specific Service ramp signs should include distances to the service facilities.

Option:

An exit number plaque (see Section 2E.28) may be used instead of the exit number on the signs located in advance of an interchange.

The reduced size logo panels and signs also may be installed along the crossroad.

Section 2F.08 Double-Exit Interchanges

Guidance:

At double-exit interchanges, the Specific Service signs should consist of two sections, one for each exit (see Figure 2F-1).

Standard:

At a double-exit interchange, the top section shall display the logo panels for the first exit and the bottom section shall display the logo panels for the second exit. The name of the service type and the exit number shall be displayed above the logo panels in each section. At unnumbered interchanges, the word message NEXT RIGHT (LEFT) and SECOND RIGHT (LEFT) shall be used in place of the exit number. The number of logo panels on the sign (total of both sections) or the sign assembly shall be limited to six.

Option:

At a double-exit interchange where there are four logo panels to be displayed for one of the exits and one or two logo panels to be displayed for the other exit, the logo panels may be arranged in three rows with two logo panels per row.

At a double-exit interchange, where a service is to be signed for only one exit, one section of the Specific Service sign may be omitted, or a single exit interchange sign may be used. Signs on ramps and crossroads as described in Section 2F.07 may be used at a double-exit interchange.

Section 2F.09 Signs at Intersections (NOT APPLICABLE IN DELAWARE)

Section 2F.10 Signing Policy

DelDOT Rev.

Guidance:

Refer to DelDOT's Travel Services (Logo) Program guidelines for additional guidance.

CHAPTER 2G. TOURIST-ORIENTED DIRECTIONAL SIGNS (NOT APPLICABLE IN DELAWARE)

CHAPTER 2H. RECREATIONAL AND CULTURAL INTEREST AREA SIGNS

Section 2H.01 Scope

Support:

Recreational or cultural interest areas are attractions or traffic generators that are open to the general public for the purpose of play, amusement, or relaxation. Recreational attractions include such facilities as parks, campgrounds, gaming facilities, and ski areas, while examples of cultural attractions include museums, art galleries, and historical buildings or sites.

The purpose of recreation and cultural interest area signs, also know as "Brown Guide Signs for Attractions" in Delaware, is to guide road users to a general area and then to specific facilities or activities within the area. The "Standards for Brown Guide Signs for Attractions" were developed by DelDOT and the Delaware Economic Development Office (DEDO) and will govern all requests for brown guide signs and trailblazer signs for attractions. **DelDOT Rev.**

Option:

Recreational and cultural interest area signs that depict significant traffic generators may be used on freeways and expressways where there is direct access to these areas as discussed in Section 2H.09.

Recreational and cultural interest area signs may be used off the road network, as appropriate.

Section 2H.02 Application of Recreational and Cultural Interest Area Signs

Support:

Standards for signing recreational or cultural interest areas are subdivided into two different types of signs: (1) symbol signs and (2) destination guide signs.

Option:

Recreational and Cultural Interest Area signs may be provided for recreational, cultural, or historical interest organizations near interstate highways, expressways and other highways to direct persons to facilities, structures, and places, and to identify various services available to the general public. These signs may also be used in recreational, cultural or historic interest areas for signing nonvehicular events and amenities such as trails, structures, and facilities.

Standard:

To be eligible for destination guide signs and trailblazer signs, organizations must meet the following minimum requirements:

A. Must be open to the general public at least five days per week and at least five and half-hours per day. Seasonal attractions will be considered on a case by case basis. **DelDOT Rev.**

B. Must be of recreational, cultural or historical interest.

C. Facilities that mainly function as a restaurant, store or accommodation are prohibited.

D. Any organization that displays signs that are not within the standards of this program will be ineligible for all facets of the program.

E. Organizations must have proven non-profit status.

See DelDOT's "Standards for Brown Guide Signs for Attractions" for additional guidance.

Guidance:

Recreational and cultural interest signs should be located no more than three miles from the attraction. Exceptions will be made on a case by case basis as deemed necessary by Delaware Economic Development Office (DEDO) and DelDOT.

Section 2H.03 Regulatory and Warning Signs

Standard:

All regulatory and warning signs installed on public roads and streets within recreational and cultural interest areas shall conform to the requirements of Chapters 2A, 2B, and 2C.

Section 2H.04 General Design Requirements for Recreational and Cultural Interest Area Symbol Signs

Standard:

Recreational and cultural interest area symbol signs shall be square or rectangular in shape and shall have a white symbol or message and white border on a brown background or a logo of the

attraction on a brown background. The symbols shall be grouped into the following usage and series categories (see "Standard Highway Signs" book for design details):

A. General Information (RG Series)
B. Motorist Services (RM Series)
C. Accommodation Services (RA Series)
D. Land Recreation (RL series)
E. Water Recreation (RW Series), and
F. Winter Recreation (RS Series)

If logos are used, the name of the attraction should be included in the logo design. See Section 2F.03 and DelDOT's "Standards for Brown Guide Signs for Attractions" for additional guidance. **DelDOT Rev.**

Support:

Table 2H-1 contains a listing of the symbols within each series category. Drawings for these symbols are found in "Standard Highway Signs" book (see Section 1A.11).

Table 2H-1. Category Chart for Symbols

General Information	
Automobile	RG-101
Bear Viewing Area	RG-020
Dam	RG-030
Deer Viewing Area	RG-040
Drinking Water	RG-050
Environmental Study Area	RG-060
Falling Rocks *	RG-070
Firearms	RG-080
Fish Hatchery	RG-090
Information	RG-100
Leashed Pets *	RG-110
Lighthouse	RG-120
Litter Container	RG-130
Lookout Tower	RG-140
Ped Xing *	RG-150
Point of Interest	RG-160
Ranger Station	RG-170
Smoking *	RG-180
Truck	RG-190
Tunnel	RG-200
Dog	RG-240
Seaplane	RG-260

Motorist Services	
Camping (Tent)	RM-010
Camping (Trailer)	RM-020
Ferry	RM-030
First Aid	RM-040
Food	RM-050
Gas	RM-060
Grocery Store	RM-070
Handicapped	RM-080
Lodging	RM-090
Mechanic	RM-100
Post Office	RM-110
Picnic Area	RM-120
Picnic Shelter	RM-130
Rest Room	RM-140
Telephone	RM-150
Trailer Sanitary Station	RM-160
Viewing Area	RM-170
Motor Home	RM-200
Group Camping	RM-210
Group Picnicking	RM-220
24-Hour Pharmacy	RM-230

Accommodation Services	
Airport	RA-010
Bus Stop	RA-020
Campfire	RA-030
Elevator *	RA-040
Kennel	RA-050
Laundry	RA-060
Locker *	RA-070
Parking	RA-080
Rest Room (Men)*	RA-090
Rest Room (Women)*	RA-100
Shelter (Sleeping)*	RA-110
Shelter (Trail)*	RA-120
Showers*	RA-130
Family Rest Room *	RA-150
Helicopter	RA-160

Land Recreation	
Amphitheater	RL-010
Climbing	RL-020
Climbing (Rock)	RL-030
Hunting	RL-040
Playground	RL-050
Rock Collecting	RL-060
Spelunking	RL-070
Stable	RL-080
Trail (Bicycle)	RL-090
Trail (Hiking)	RL-100
Trail (Horse)	RL-110
Trail (Interpretive, Auto)	RL-120
Trail (Interpretive, Ped.)	RL-130
Trail/Road (4 WD Veh.)	RL-140
Trail (Trail Bike)	RL-150
Trammway	RL-160
All-Terrain Vehicle	RL-170
Archer	RL-190
Hang Glider	RL-210

Water Recreation	
Boat Tours	RW-010
Canoeing	RW-020
Diving	RW-030
Diving (Scuba)	RW-040
Fishing	RW-050
Marine Recreation Area	RW-060
Motorboating	RW-070
Ramp (Launch)	RW-080
Rowboating	RW-090
Sailboating	RW-100
Skiing (water)	RW-110
Surfing	RW-120
Swimming	RW-130
Wading	RW-140
Fishing Pier	RW-160
Hand Launch	RW-170
Kayak	RW-190
Wind Surf	RW-210

Winter Recreation	
Skating (Ice)	RS-010
Ski Jumping	RS-020
Skiing (Bobbing)	RS-030
Skiing (Cross Country)	RS-040
Skiing (Downhill)	RS-050
Sledding	RS-060
Snowmobiling	RS-070
Snowshoeing	RS-080
Water Recreation Area	RS-090
Chairlift	RS-100

* For Non-Road Use

Option:

Mirror images of symbols may be used where the reverse image will better convey the message.

Section 2H.05 Symbol and Logo Sign Sizes

Guidance:

Recreational and cultural interest area symbol signs should be 600 x 600 mm (24 x 24 in) and logos should be 750 x 600 mm (30 x 24 in). Where greater visibility or emphasis is needed, larger sizes should be used. Symbol and logo sign enlargements should be in 150 mm (6 in) increments. **DelDOT Rev.**

Recreational and cultural interest area symbol signs should be 750 x 750 mm (30 x 30 in) when used on freeways or expressways.

Option:

A smaller size of 450 x 450 mm (18 x 18 in) may be used for symbols on low-speed, low-volume roadways and on non-road applications.

Section 2H.06 Use of Educational Plaques

Guidance:

Educational plaques should accompany all initial installations of recreational and cultural interest area symbol signs. The educational plaque should remain in place for at least 3 years after the initial installation. If used, the educational plaque should be the same width as the symbol sign.

Option:

Symbol signs that are readily recognizable by the public may be installed without educational plaques.

Support:

Figure 2H-1 illustrates some examples of the use of educational plaques.

Section 2H.07 Use of Prohibitive Slash

Standard:

The red diagonal slash, if used on a recreational and cultural interest area sign, shall be placed from the upper left corner to the lower right corner of the sign face (see Figure 2H-1). Requirements for retroreflection of the red slash shall be the same as those requirements for legends, symbols, and borders.

Option:

Where it is necessary to indicate a restriction within a recreational or cultural interest area, a red diagonal slash may be used to indicate that the activity is prohibited.

Support:

Figure 2H-1 illustrates some examples of the use of prohibitive slashes.

Section 2H.08 Placement of Recreational and Cultural Interest Area Symbol and Logo Signs

Standard:

If used, recreational and cultural interest area symbol and logo signs shall be placed in accordance with the general requirements contained in Chapter 2A. The symbol(s) shall be placed in the uppermost part of the sign assembly and the directional information shall be placed below the symbol(s).

Where the name of the recreational or cultural interest area facility or activity is shown on a general directional guide sign and a symbol is used, the symbol shall be placed below the name (see Figure 2H-2). **DelDOT Rev.**

Recreational and cultural interest area symbols installed for non-road use shall be placed in accordance with the general sign position requirements of DelDOT or the authority having jurisdiction.

See DelDOT's "Standards for Brown Guide Signs for Attractions" for additional guidance.

Support:

Figure 2H-3 illustrates typical height and lateral mounting positions. Figure 2H-4 illustrates some examples of the placement of symbol signs within a recreational or cultural interest area. Figure 2H-5 illustrates some of the symbols that can be used.

Guidance:

The number of symbols used in a single sign assembly should not exceed four. The number of logos on an Attractions sign (see Figure 2H-2) should not exceed six.

DelDOT Rev.

Option:

Symbols or logos for recreational or cultural interest areas may be used as legend components for a directional sign assembly. The symbols or logos may be used singularly, or in groups of two, three, or four on a single sign assembly (see Figures 2H-1, 2H-3, and 2H-4). Smaller-size secondary symbols (see Figure 2H-1) may be placed beneath the primary symbols, where needed.

Figure 2H-1. Examples of Use of Educational Plaques, Prohibitory Slashes, and Arrows

a) Directional sign with arrow

b) Directional signs with arrow

c) Directional signs with arrows

d) Directional sign with secondary symbol

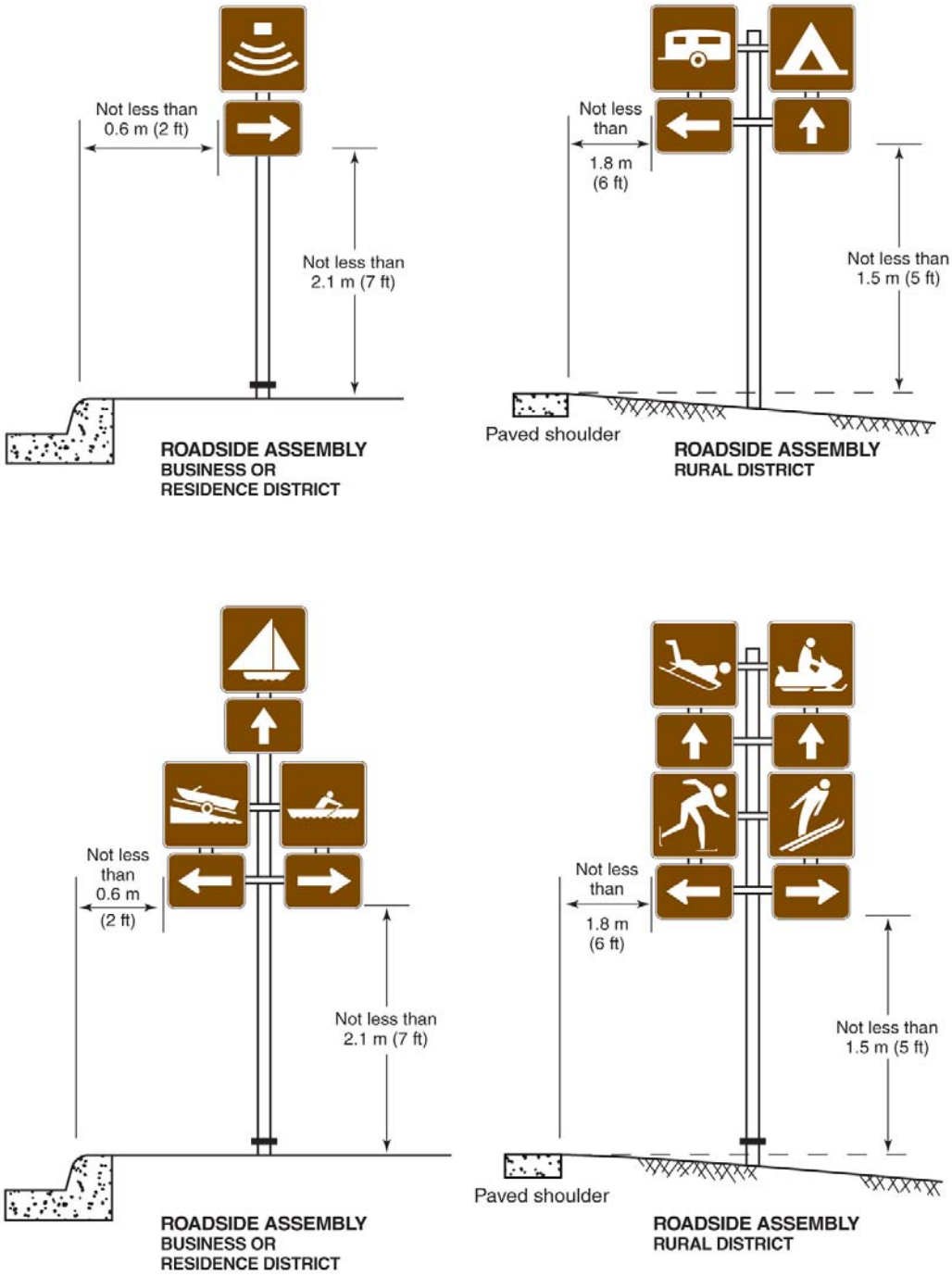
e) Management symbols with prohibitive slashes and educational plaques

f) Directional sign with educational plaque and arrow

Figure 2H-2. Examples of General Directional Guide Signs

DelDOT Revision

Figure 2H-3. Height and Lateral Position of Signs Located Within Recreational and Cultural Interest Areas



Note:
See Section 2A.19 for reduced lateral offset distances that may be used in areas where lateral offsets are limited, and in urban areas where sidewalk width is limited or where existing poles are close to the curb.

Figure 2H-4. Examples of Symbol Signing Layout

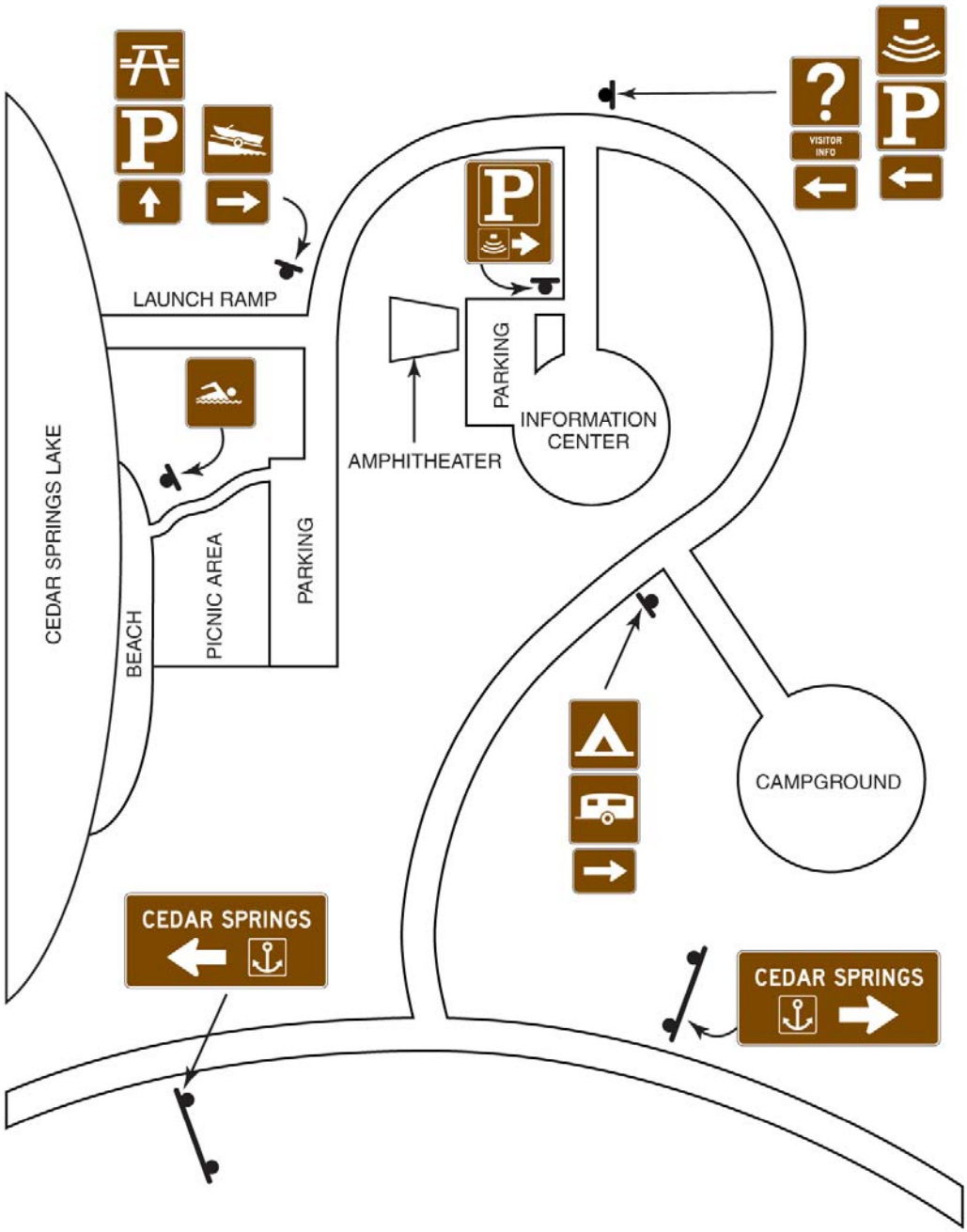


Figure 2H-5. Recreational and Cultural Interest Area Symbol Signs
(Sheet 1 of 5)

RG-010
Automobile

RG-020
Bear Viewing Area

RG-030
Dam

RG-040
Deer Viewing Area

RG-050
Drinking Water

RG-060
Environmental
Study Area

RG-070
Falling Rocks

RG-080
Firearms

RG-090
Fish Hatchery

RG-100
Information

RG-110
Leashed Pets

RG-120
Lighthouse

RG-130
Litter Container

RG-140
Lookout Tower

RG-150
Ped Xing

RG-160
Point of Interest

RG-170
Ranger Station

RG-180
Smoking

RG-190
Truck

RG-200
Tunnel

RG-240
Dog

RG-260
Seaplane

RM-010
Camping (Tent)

RM-020
Camping (Trailer)

RM-030
Ferry

Figure 2H-5. Recreational and Cultural Interest Area Symbol Signs
(Sheet 2 of 5)

Figure 2H-5. Recreational and Cultural Interest Area Symbol Signs
(Sheet 3 of 5)

Figure 2H-5. Recreational and Cultural Interest Area Symbol Signs
(Sheet 4 of 5)

Figure 2H-5. Recreational and Cultural Interest Area Symbol Signs
(Sheet 5 of 5)

RS-070 Snowmobiling | RS-080 Snowshoeing | RS-090 Winter Recreation Area | RS-100 Chairlift

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Section 2H.09 <u>Destination Guide Signs</u>

Guidance:

When recreational or cultural interest area destinations are shown on supplemental guide signs, the sign should be rectangular or trapezoidal in shape. The order of preference for use of shapes and colors should be as follows: (1) rectangular with a white legend and border on a green background; (2) rectangular with a white legend and border on a brown background; or (3) trapezoidal with a white legend and border on a brown background.

See DelDOT's "Standards for Brown Guide Signs for Attractions" for additional guidance. **DelDOT Rev.**

Standard:

Whenever the trapezoidal shape is used, the color combination shall be a white legend and border on a brown background.

Option:

White-on-brown destination guide signs may be posted at the first point where an access or crossroad intersects a highway where recreational or cultural interest areas are a significant destination along conventional roads, expressways, or freeways. White-on-brown supplemental guide signs may be used along conventional roads, expressways, or freeways to direct road users to recreational or cultural interest areas. Where access or crossroads lead exclusively to the recreational or cultural interest area, the advance guide sign and the exit direction sign may be white-on-brown.

Standard:

Linear parkway-type highways that primarily function as arterial connectors, even if they also provide access to recreational or cultural interest areas, shall not qualify for the use of white-on-brown destination guide signs. Directional guide signs used on these highways shall conform to Chapter 2D.

All gore signs shall have a white legend and border on a green background. The background color of the interchange exit number panel shall match the background color of the guide sign. Design characteristics of conventional road, expressway, or freeway guide signs shall conform to Chapter 2D or 2E except as specified in this Section for color combination.

The advance guide sign and the Exit Direction sign shall retain the white-on- green color combination where the crossroad leads to a destination other than a recreational or cultural interest area.

Support:

Figure 2H-2 illustrates destination guide signs commonly used for identifying recreational or cultural interest areas or facilities.

CHAPTER 2I. EMERGENCY MANAGEMENT SIGNING

Section 2I.01 Emergency Management

Guidance:

Delaware's Transportation Incident and Event and Management Plan (TIEMP) establishes communications, policies, and procedures for the coordinated management of any incident or event that impacts the transportation system. The TIEMP identifies specific roles and responsibilities for the coordinated management of transportation resources to maximize the safe outbound flow of persons and vehicles from the affected areas and give emergency personnel access to the affected area(s). **DelDOT Rev.**

Section 2I.02 Design of Emergency Management Signs

Standard:

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

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

Advance planning for transportation operations' emergencies shall be the responsibility of Delaware's Transportation Management Team (TMT). The Federal Government shall provide guidance to the TMT as necessitated by changing circumstances. **DelDOT Rev.**

The sizes for Emergency Management signs shall be as shown in Table 2I-1.

Guidance:

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

The background of Emergency Management signs should be retroreflective.

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:

Any Emergency Management sign may be accompanied by a standard triangular plaque for marking areas contaminated by biological and chemical warfare agents and radioactive fallout.

Section 2I.03 EVACUATION ROUTE Sign and Arrow (EM-1-DE, EM-1p-DE)

Standard:

The EVACUATION ROUTE (EM-1-DE) sign (see Figure 2I-1) shall be a rectangular sign with a blue circular symbol with the legend EVACUATION ROUTE. The diameter of the circular symbol shall be 25 mm (1 in) smaller than the width of the sign. The Arrow (EM-1p-DE) sign (see Figure 2I-1) shall be a rectangular sign with a blue background with a directional arrow. **DelDOT Rev.**

Option:

An approved Emergency Management symbol may appear near the bottom of the sign with a diameter of 87 mm (3.5 in).

Standard:

The legend of the EVACUATION ROUTE (EM-1-DE) sign shall be white on a blue circular background. The corners of the sign outside of the circle shall be white. The entire sign shall be retroreflective. The arrow (EM-1p-DE) plaque (see Figure 2I-1) shall have the same legend design as the Directional Arrow auxiliary sign (see Section 2D.26) except that it shall have a white legend and border on a blue background. **DelDOT Rev.**

If used, the EVACUATION ROUTE sign, with the appropriate arrow plaque, shall be installed 45 to 90 m (150 to 300 ft) in advance of, and at, any turn in an approved evacuation route. The signs shall also be installed elsewhere for straight-ahead confirmation where needed.

If used in urban areas, the EVACUATION ROUTE sign shall be mounted at the right-hand side of the roadway, not less than 2.1 m (7 ft) above the top of the curb, and at least 0.3 m (1 ft) back from the face of the curb. If used in rural areas, it shall be not less than 2.1 m (7 ft) above the pavement and 1.8 to 3 m (6 to 10 ft) to the right side of the roadway edge.

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.

Table 2I-1. Emergency Management Sign Sizes **DelDOT Rev.**

Sign	MUTCD Code	Section	Conventional Road	Expressway	Freeway	Minimum	Oversized
Evacuation Route	EM-1-DE	2I.03	600 x 600 (24 x 24)	600 x 600 (24 x 24)	-	-	-
Arrow	EM -1p-DE	2I.03	300 x 300 (12 x 12)	300 x 300 (12 x 12)	-	-	-

Option:

In case of conflict with guide or warning signs, the Emergency Management sign may take precedence.

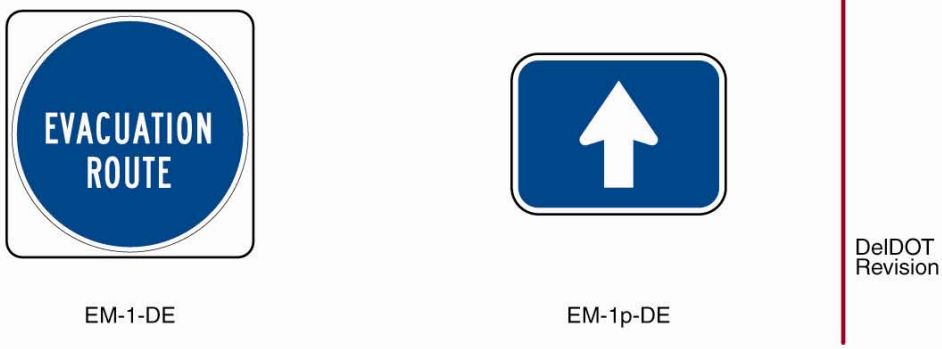
Guidance: **DelDOT Rev.**

Placement of EVACUATION ROUTE signs should be made under the supervision of DelDOT. Coordination with Delaware Emergency Management Agency and agreement between contiguous political entities should occur to assure continuity of routes.

Option:

The arrow may be a separate panel attached to the face of the sign.

Figure 2I-1. Emergency Management Signs



Section 2I.04 <u>AREA CLOSED Sign (EM-2) (NOT APPLICABLE IN DELAWARE)</u>

Section 2I.05 <u>TRAFFIC CONTROL POINT Sign (EM-3) (NOT APPLICABLE IN DELAWARE)</u>

Section 2I.06 <u>MAINTAIN TOP SAFE SPEED Sign (EM-4) (NOT APPLICABLE IN DELAWARE)</u>

Section 2I.07 <u>ROAD (AREA) USE PERMIT REQUIRED FOR THRU TRAFFIC Sign (EM-5) (NOT APPLICABLE IN DELAWARE)</u> **DelDOT Rev.**

Section 2I.08 <u>Emergency Aid Center Signs (EM-6 Series) (NOT APPLICABLE IN DELAWARE)</u>

Section 2I.09 <u>Shelter Directional Signs (EM-7 Series) (NOT APPLICABLE IN DELAWARE)</u>