

Figure 2E-22. Examples of Interchange Advance Guide Signs, Exit Number Plaques, and LEFT Plaque



Standard:

06 Advance Guide signs for multi-lane exits having an optional exit lane that also carries the through route (see Figures 2E-4, 2E-5, 2E-8, and 2E-9) and for splits with an option lane (see Figures 2E-6 and 2E-10) shall be Overhead Arrow-per-Lane or diagrammatic signs designed in accordance with Sections 2E.20 through 2E.22.

07 Except as provided in Section 2E.24, Advance Guide signs, if used, shall contain the distance message. Except as provided in Paragraph 8 of this Section, 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 XX MILES. If the interchange has two or more exit roadways, the bottom line shall read EXITS XX MILES.

Guidance:

08 Where interchange exit numbers are used, the word EXIT(S) should be omitted from the bottom line.

Option:

- 09 Where the distance between interchanges is more than 1 mile, but less than 2 miles, the first Advance Guide sign may be closer than 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:

- 10 Where there is less than 800 feet between interchanges, Interchange Sequence Series signs (see Section 2E.40) should be used instead of Advance Guide signs for the affected interchanges.
- 11 The Advance Guide signs for the last exit from a highway before it becomes a facility on which toll payments are required should include the LAST EXIT BEFORE TOLL (W16-16P) plaque (see Section 2F.10 and Figure 2F-3). The plaque should be installed above the Advance Guide signs.

Option:

- 12 If there is insufficient space above the Advance Guide sign because of the presence of an exit number plaque, the W16-16P plaque may be installed below the Advance Guide sign.

Section 2E.34 Next Exit Plaques

Option:

- 01 Where the distance to the next interchange is unusually long, a Next Exit plaque (see Figure 2E-23) may be installed to inform road users of the distance to the next interchange.

Guidance:

- 02 The Next Exit plaque should not be used unless the distance between successive interchanges is more than 5 miles.

Standard:

- 03 **The Next Exit plaque shall carry the legend NEXT EXIT XX MILES. If the Next Exit plaque 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:

- 04 The legend for the Next Exit plaque may be displayed in either one or two lines as shown in Figure 2E-23.

Support:

- 05 The one-line message on the Next Exit plaque 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.35 Other Supplemental Guide Signs

Support:

- 01 Supplemental Guide signs can be used to provide information regarding destinations accessible from an interchange, other than places displayed 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:

- 02 No more than one Supplemental Guide sign should be used on each interchange approach.

Figure 2E-23. Next Exit Plaques

- 03 *A Supplemental Guide sign (see Figure 2E-24) 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.*
- 04 *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 800 feet. If the interchanges are numbered, the interchange number should be used for the action message.*
- 05 *States and other agencies should adopt an appropriate policy for installing supplemental signs using “The AASHTO Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways.” In developing policies for such signing, such items as population, amount of traffic generated, distance from the route, and the significance of the destination should be taken into account.*

Standard:

- 06 **Guide signs directing drivers to park - ride facilities shall be considered as Supplemental Guide signs (see Figure 2E-25).**

Option:

- 07 A pictograph (see definition in Section 1A.13) may be used on a Supplemental Guide sign in conjunction with a destination that is associated with governmental agencies, military bases, universities, or other government-approved institutions.

Standard:

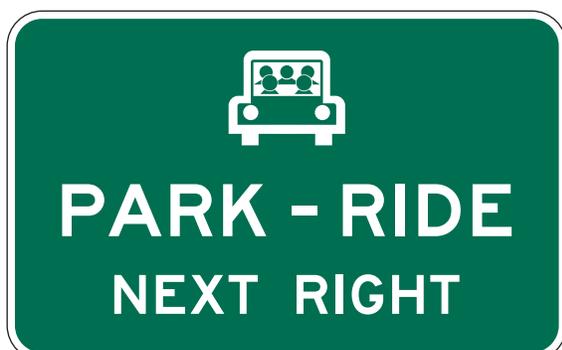
- 08 **The maximum dimension (height or width) of a pictograph shall not exceed two times the upper-case letter height of the destination legend and shall not exceed the size of a route shield on the guide sign. If used, the pictograph shall be located to the left of the destination legend it represents, except as provided in Paragraph 9 for the park-ride Supplemental Guide sign.**
- 09 **When a transit pictograph is displayed on the park-ride Supplemental Guide sign, it shall be located on the same line as the carpool symbol, if used, above the word legend.**
- 10 **A pictograph representing a State, county, or municipal corporation or other incorporated or unincorporated community shall not be displayed on a Supplemental Guide sign.**
- 11 **Pictographs shall otherwise comply with the provisions of Section 2A.06.**

Figure 2E-24. Supplemental Guide Sign for a Multi-Exit Interchange

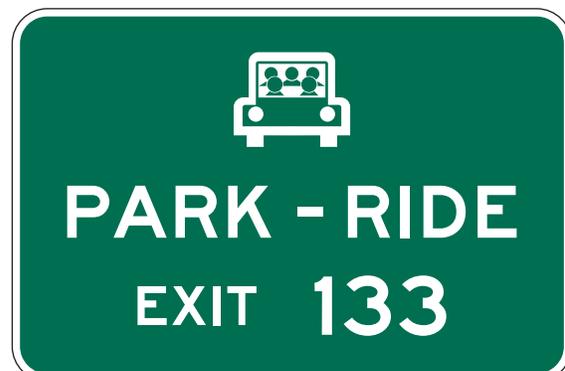


Figure 2E-25. Supplemental Guide Sign for a Park – Ride Facility

A – ROUTE WITHOUT EXIT NUMBERING



B – ROUTE WITH EXIT NUMBERING



Section 2E.36 Exit Direction Signs

Support:

01 The Exit Direction sign (see Figure 2E-26) repeats the route and destination information that was displayed 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 left for that destination.

Standard:

02 **Exit Direction signs shall be used at major and intermediate interchanges. Populations or other similar information shall not be displayed on Exit Direction signs.**

Guidance:

03 *Exit Direction signs should be used at minor interchanges.*

04 *post-mounted Exit Direction signs should be installed at the beginning of the deceleration lane. If there is less than 300 feet from the upstream end 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:

05 **Except where Overhead Arrow-per-Lane guide signs are used (see Section 2E.21 and Paragraph 6 of this Section), 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 through 2E-11, and 2E-14 through 2E-16).**

06 **Except as provided in Paragraph 4 in Section 2E.21, where Overhead Arrow-per-Lane guide signs are used for the Advance Guide sign(s) for a multi-lane exit having an optional exit lane that also carries the through route or for a split with an option lane (see Section 2E.21), an Overhead Arrow-per-Lane guide sign shall also be used instead of the Exit Direction sign. This Overhead Arrow-per-Lane guide sign shall include the appropriate exit number (E1-5P or E1-5bP) plaque (if a numbered exit) and it shall be located near, but not downstream from, the point where the outside edge of the dropped lane begins to diverge from the mainline (see Figures 2E-4 through 2E-6).**

Figure 2E-26. Examples of Interchange Exit Direction Signs



- 07 **The following provisions shall govern the design and application of overhead Exit Direction signs:**
- A. **The sign shall carry the exit number (if exit numbering is used), the route number, cardinal direction, and destination, as applicable, with a diagonally upward-pointing directional arrow (see Figure 2E-26).**
 - B. **The message EXIT ONLY in black on a yellow sign panel (E11-1d or E11-1e) shall be used on the overhead Exit Direction sign to advise road users of a lane drop situation (see Figures 2E-8 through 2E-11). The sign shall comply with the provisions of Section 2E.24.**

Guidance:

- 08 *For numbered exits to the right, an exit number (E1-5P) plaque (see Figure 2E-22) should be added to the top right-hand edge of the sign.*

Standard:

- 09 **For numbered exits to the left, a left exit number (E1-5bP) plaque (see Figure 2E-22) shall be added to the top left-hand edge of the sign.**
- 10 **For non-numbered exits to the left, a LEFT (E1-5aP) plaque (see Figure 2E-22) shall be added to the top left-hand edge of the sign.**

Support:

- 11 Section 2E.31 contains additional information regarding exit numbering.

Option:

- 12 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.33) between major guide signs, Interchange Sequence signs (see Section 2E.40) may be substituted for an Advance Guide sign.

Guidance:

- 13 *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-hand 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.*

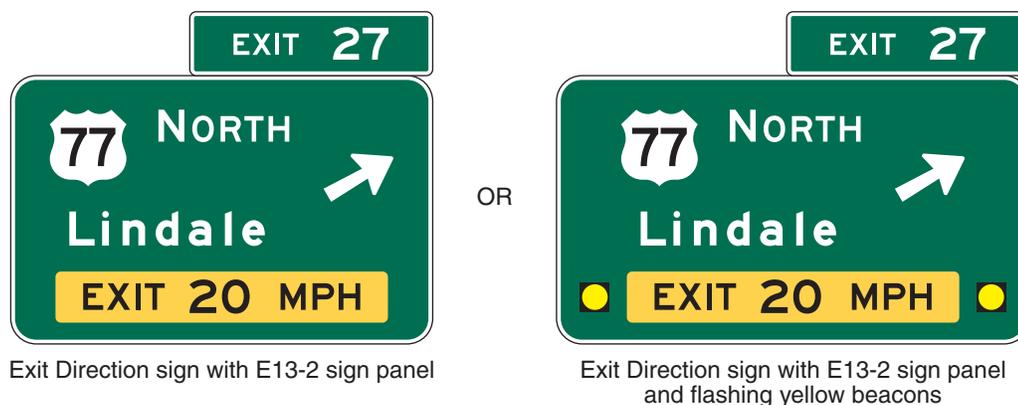
Option:

- 14 If the second exit is beyond an underpass, the Exit Direction sign may be mounted on the face of the overhead structure.
- 15 Where extra emphasis of an especially low advisory ramp speed is needed, an EXIT XX MPH (E13-2) sign panel (see Figure 2E-27) may be placed at the bottom of the Exit Direction sign to supplement, but not to replace, the exit or ramp advisory speed warning signs.

Guidance:

- 16 *At the last exit from a highway before it becomes a facility on which toll payments are required, the LAST EXIT BEFORE TOLL (W16-16P) plaque (see Section 2F.10 and Figure 2F-3) should be installed above the Exit Direction sign.*

Figure 2E-27. Interchange Exit Direction Sign with an Advisory Speed Panel



Option:

- 17 If there is insufficient space above the Exit Direction sign because of the presence of an Exit Number (E1-5P) plaque, the W16-16P plaque may be mounted below the Exit Direction sign.

Section 2E.37 Exit Gore Signs (E5-1 Series)

Support:

- 01 The Exit Gore (E5-1 or E5-1a) sign (see Figure 2E-28) 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:

- 02 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. If suffix letters are used for exit numbering at a multi-exit interchange, the suffix letter shall also be included on the Exit Gore sign and shall be separated from the exit number by a space having a width of between 1/2 and 3/4 of the height of the suffix letter. Breakaway or yielding supports shall be used.

Guidance:

- 03 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:

- 04 Where extra emphasis of an especially low advisory ramp speed is needed, an E13-1P plaque indicating the advisory speed may be mounted below the Exit Gore sign (see Figure 2E-28) to supplement, but not to replace, the exit or ramp advisory speed warning signs.
- 05 To improve the visibility of the gore for exiting drivers, a Type 1 object marker (see Chapter 2C) may be installed on each sign support below the Exit Gore sign.
- 06 An Exit Number (E5-1bP) plaque (see Figure 2E-22) may be installed above an existing Exit Gore (E5-1) sign when a non-numbered exit is converted to a numbered exit.

Standard:

- 07 An Exit Gore (E5-1a) sign shall be used when the replacement of an existing assembly of an E5-1 sign and an E5-1bP plaque becomes necessary.

Option:

- 08 The Narrow Exit Gore (E5-1c) sign may be used in gore areas of limited width where the width of the Exit Gore (E5-1a) sign would not permit sufficient lateral offset (see Section 2A.19), such as for ramp departures that are nearly parallel to the mainline roadway where the Exit Gore sign would be mounted on a narrow island or barrier. Where the E5-1c sign is mounted at a height of 14 feet or more from the roadway, the directional arrow may point diagonally downward.

Guidance:

- 09 The E5-1c should not be used in gore areas where an E5-1a sign could be installed with sufficient lateral offset.

Section 2E.38 Post-Interchange Signs

Guidance:

- 01 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 500 feet beyond the downstream 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 1,000 feet.
- 02 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:

- 03 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.

Section 2E.39 Post-Interchange Distance Signs**Standard:**

- 01 **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-29).**

Support:

- 02 The minimum sizes of the route shields identifying a significant destination point are prescribed in Tables 2E-3 and 2E-5.

Option:

- 03 The text identification of a route may be displayed instead of a route shield, such as “US XX,” “State Route XX,” or “County Route XX.”

Guidance:

- 04 *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:

- 05 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:

- 06 **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:

- 07 *Distances to the same destinations should not be shown more frequently than at 5-mile 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. The distance displayed for each community should comply with the provisions of Section 2D.41.*

Section 2E.40 Interchange Sequence Signs

Option:

- 01 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.

Guidance:

- 02 *If used, Interchange Sequence signs should be used over the entire length of a route in an urban area. Except as provided in Paragraph 3, they should not be used on a single interchange basis.*

- 03 *If there is less than 800 feet between interchanges, Interchange Sequence signs should be used instead of the Advance Guide signs for the affected interchanges.*

Support:

- 04 Interchange Sequence signs are generally supplemental to Advance Guide signs. Signing of this type is illustrated in Figures 2E-30 and 2E-31, and is compatible with the sign spreading concept described in Paragraph 3 of Section 2E.11.

- 05 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 1/4 mile.

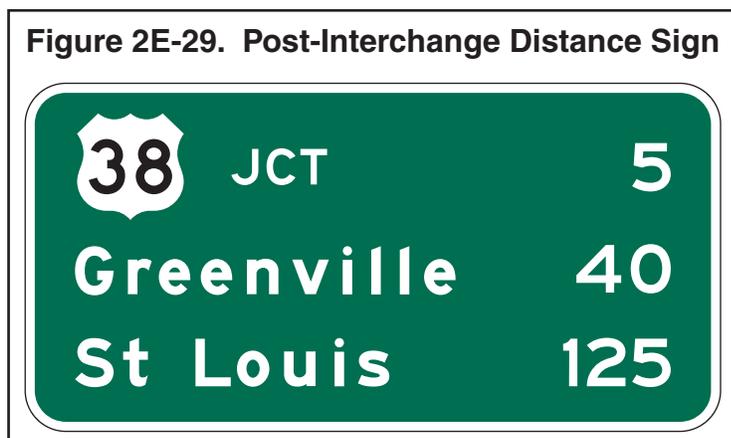
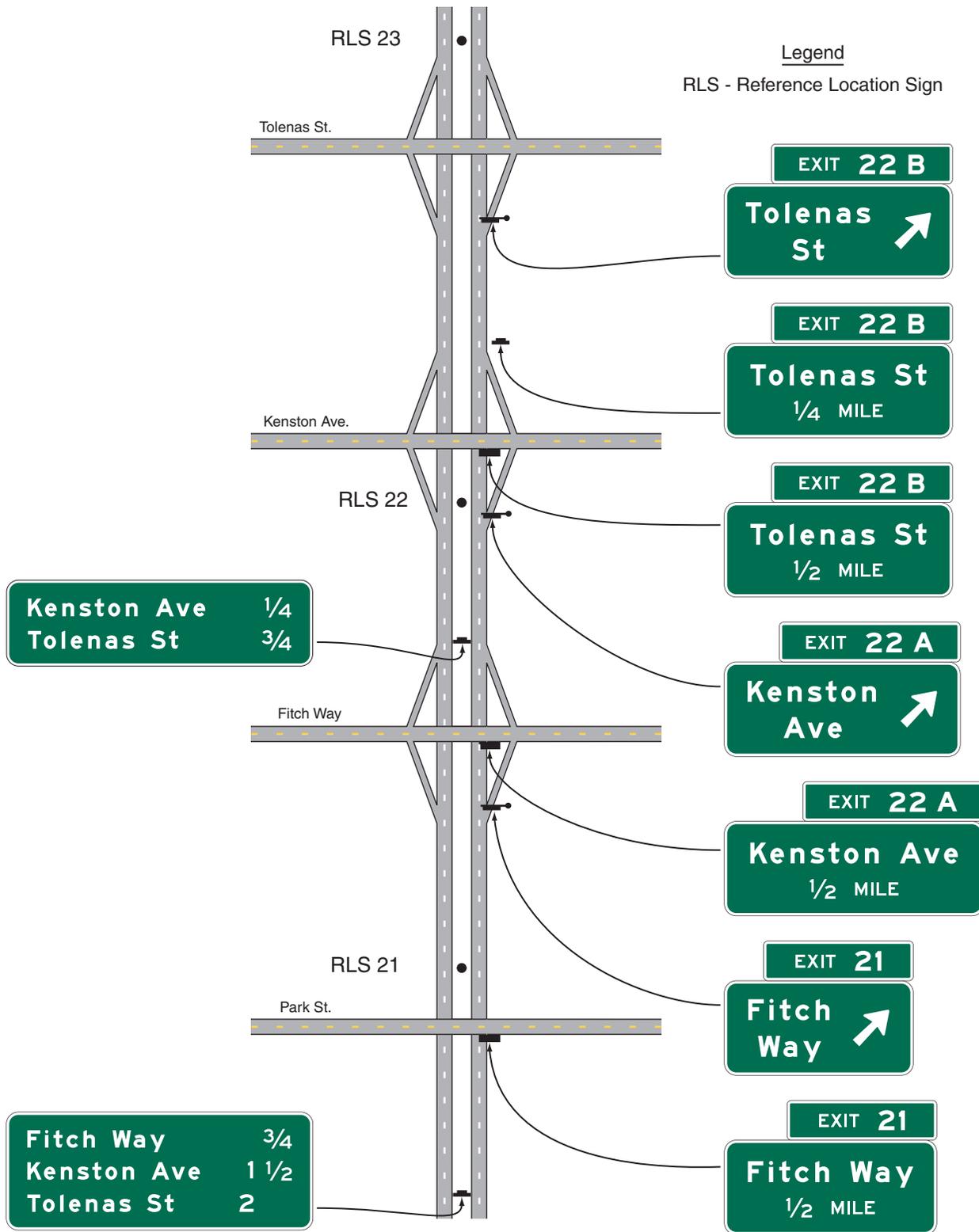


Figure 2E-30. Example of Using an Interchange Sequence Sign for Closely-Spaced Interchanges



Standard:

06 If used, the first sign in the series shall be located in advance of the first Advance Guide sign for the first interchange.

07 Where the exit direction is to the left, a LEFT (E11-2) sign panel (see Figure 2E-13) shall be displayed on the same line immediately to the right of the interchange name or route number.

08 Interchange Sequence signs shall not be substituted for Exit Direction signs.

Guidance:

09 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:

10 Interchange Sequence signs located in the median shall be installed at overhead sign height (see Section 2A.18).

Option:

11 Interchange numbers may be displayed to the left of the interchange name or route number.

Section 2E.41 Community Interchanges Identification Signs

Support:

01 For suburban or rural communities served by two or three interchanges, Community Interchanges Identification signs are useful (see Figure 2E-32).

Guidance:

02 In these cases, the name of the community followed by the word Exits should be displayed on the top line; the lines below should display the destination, road name or route number, and the corresponding distances to the nearest 1/4 mile.

03 The sign should be located in advance of the first Advance Guide sign for the first interchange within the community.

Option:

04 If interchanges are not conveniently identifiable or if there are more than three interchanges to be identified, the NEXT XX EXITS sign (see Section 2E.42) may be used.

Section 2E.42 NEXT XX EXITS Sign

Support:

01 Many freeways or expressways pass through historical or recreational regions, or urban areas served by a succession of several interchanges.

Option:

02 Such regions or areas may be indicated by a NEXT XX EXITS sign (see Figure 2E-33) located in advance of the Advance Guide sign or signs for the first interchange.

Guidance:

03 The sign legend should identify the region or area followed by the words NEXT XX EXITS.

Figure 2E-31. Interchange Sequence Sign



Figure 2E-32. Community Interchanges Identification Sign

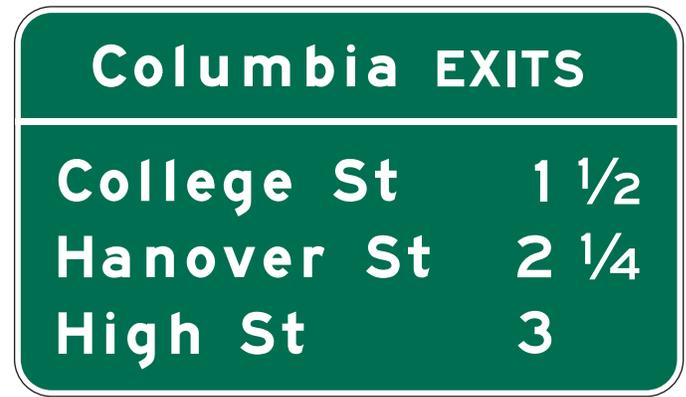


Figure 2E-33. NEXT EXITS Sign



Section 2E.43 Signing by Type of Interchange

Support:

- 01 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-34 through 2E-40 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 freeway and on the exit ramps. Section 2D.45 contains information regarding the signing of the crossroad approaches and connecting roadways to freeways and expressways.

Standard:

- 02 **Interchange guide signing shall be consistent for each type of interchange along a route.**

Guidance:

- 03 *The signing layout for all interchanges having only one exit ramp in the direction of travel should be similar, regardless of the interchange type. 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-34 through 2E-40) 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.44 Freeway-to-Freeway Interchange

Support:

- 01 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-34 shows examples of guide signs at a freeway-to-freeway interchange.

Guidance:

- 02 *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, except where Overhead Arrow-per-Lane or Diagrammatic signs are used in accordance with the provisions of Sections 2E.20 through 2E.22.*

Support:

- 03 At splits where the off-route movement is to the left or where there is an optional lane split, expectancy problems usually result.

Standard:

- 04 **At splits where the off-route movement is to the left, the Left Exit Number (E1-5bP) plaque shall be added at the top left-hand edge of the guide sign (see Section 2E.31). Overhead Arrow-per-Lane or Diagrammatic guide signs (see Sections 2E.21 and 2E.22) shall be used for freeway splits with an option lane and for multi-lane freeway-to-freeway exits having an option lane.**
- 05 **Overhead signs shall be used at a distance of 1 mile and at the theoretical gore of each connecting ramp. When Overhead Arrow-per-Lane or Diagrammatic guide signs are used, they shall comply with the provisions of Sections 2E.21 and 2E.22.**

Option:

- 06 Overhead signs may also be used at the 1/2-mile and 2-mile locations.
- 07 The arrow and/or the name of the control city may be omitted on signs that indicate the straight-ahead continuation of a route on a Pull-Through sign (see Section 2E.12).
- 08 An Advisory 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.14).
- 09 Where extra emphasis of an especially low advisory ramp speed is needed, an EXIT XX MPH (E13-2) sign panel (see Figure 2E-27) may be placed at the bottom of the Exit Direction sign to supplement, but not to replace, the exit or ramp advisory speed warning signs.

Section 2E.45 Cloverleaf Interchange

Support:

- 01 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-35.

Guidance:

- 02 *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-34. Examples of Guide Signs for a Freeway-to-Freeway Interchange
(Sheet 1 of 2)

A - Example of Signing for a Two-Lane Exit Ramp with Two Dropped Lanes and a Bifurcation Beyond the Mainline Gore

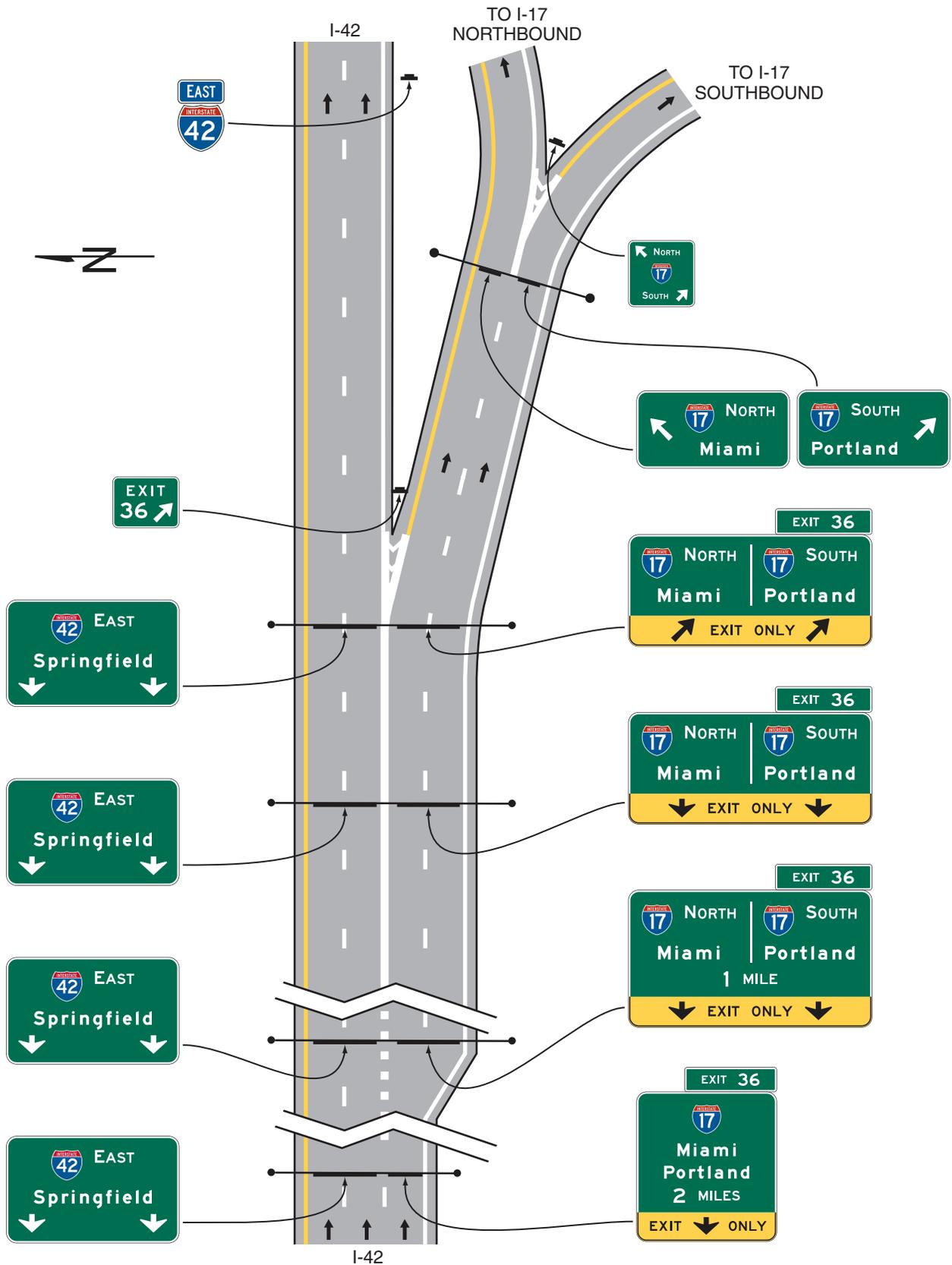


Figure 2E-34. Examples of Guide Signs for a Freeway-to-Freeway Interchange
(Sheet 2 of 2)

B - Example of Signing for Successive Exit Ramps with a Dropped Lane at the Second Exit

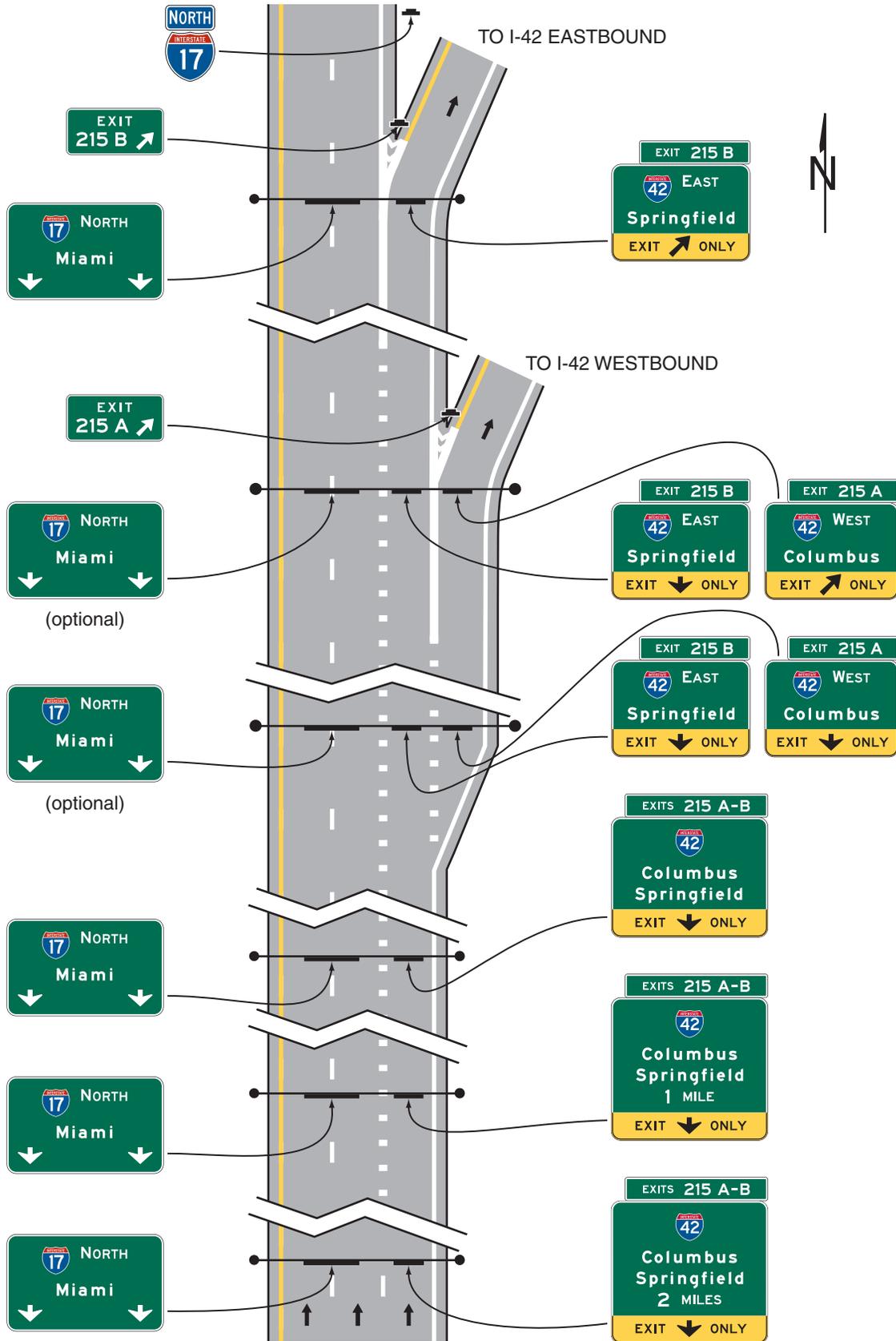
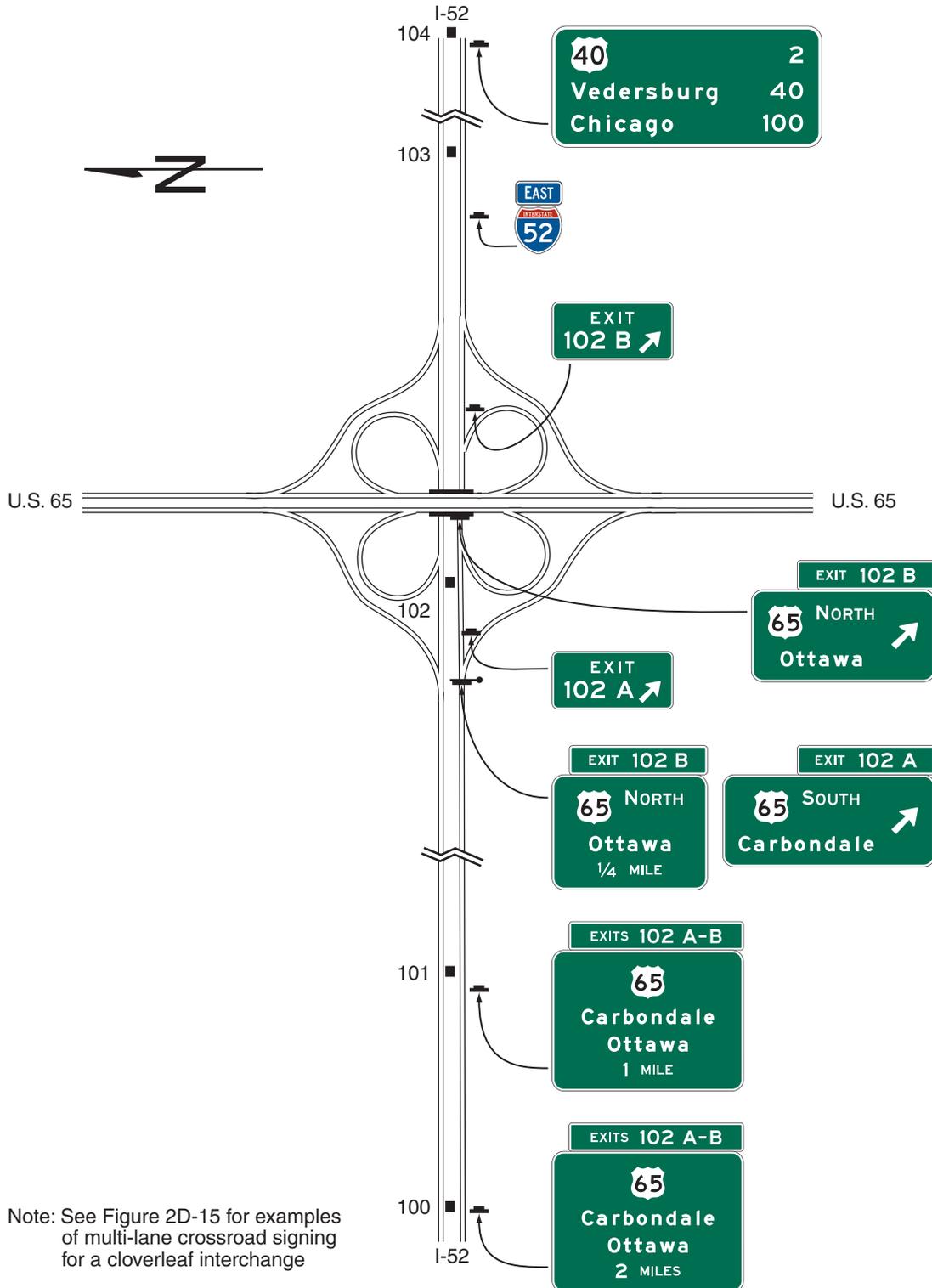


Figure 2E-35. Examples of Guide Signs for a Full Cloverleaf Interchange



Standard:

03 **An overhead guide sign shall be placed at the theoretical gore of the first exit ramp, with a diagonally upward-pointing directional arrow on the Exit Direction sign for that exit and the message XX MILES, or EXIT XX MILES if interchange numbering is not used, on the Advance Guide sign for the second exit, as shown in Figure 2E-35. The second exit shall be indicated by an overhead Exit Direction sign over the auxiliary lane. An Exit Gore sign shall also be used at each gore (see Section 2E.37).**

04 **Interchanges with more than one exit from the main line shall be numbered as described in Section 2E.31 with an appropriate suffix.**

05 **Diagrammatic signs shall not be used for cloverleaf interchanges except as otherwise provided in Section 2E.22.**

Guidance:

06 *Where the mainline passes under the crossroad and the exit roadway is located beyond the overcrossing structure, the overhead Exit Direction sign for the second exit should be placed either on the overcrossing structure (see Figure 2E-35) or on a separate structure located immediately in front of the overcrossing structure.*

Section 2E.46 Cloverleaf Interchange with Collector-Distributor Roadways**Support:**

01 Examples of guide signs for full cloverleaf interchanges with collector-distributor roadways are shown in Figure 2E-36.

Guidance:

02 *Signing on the collector-distributor roadways should be the same as the signing on the mainline of a cloverleaf interchange.*

Standard:

03 **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:

04 Exits from the collector-distributor roadways may be numbered with an appropriate suffix. If the exits from a collector-distributor roadway are numbered with suffixes, the Advance Guide signs on the mainline may include two place names and their corresponding exit numbers with the plural EXITS. If only the exit from the mainline is numbered or if interchange numbering is not used, the Advance Guide signs on the mainline may use the singular EXIT.

Section 2E.47 Partial Cloverleaf Interchange**Support:**

01 Examples of guide signs for partial cloverleaf interchanges are shown in Figure 2E-37.

Guidance:

02 *Where the mainline passes under the crossroad and the exit roadway is located beyond the overcrossing structure, the overhead Exit Direction sign should be placed either on the overcrossing structure (see Figure 2E-37) or on a separate structure located immediately in front of the overcrossing structure.*

Standard:

03 **A post-mounted Exit Gore sign shall also be installed in the ramp gore.**

Support:

04 Partial cloverleaf interchanges with successive exit ramps from the same direction of travel are signed the same as cloverleaf interchanges for that direction of travel (see Section 2E.45).

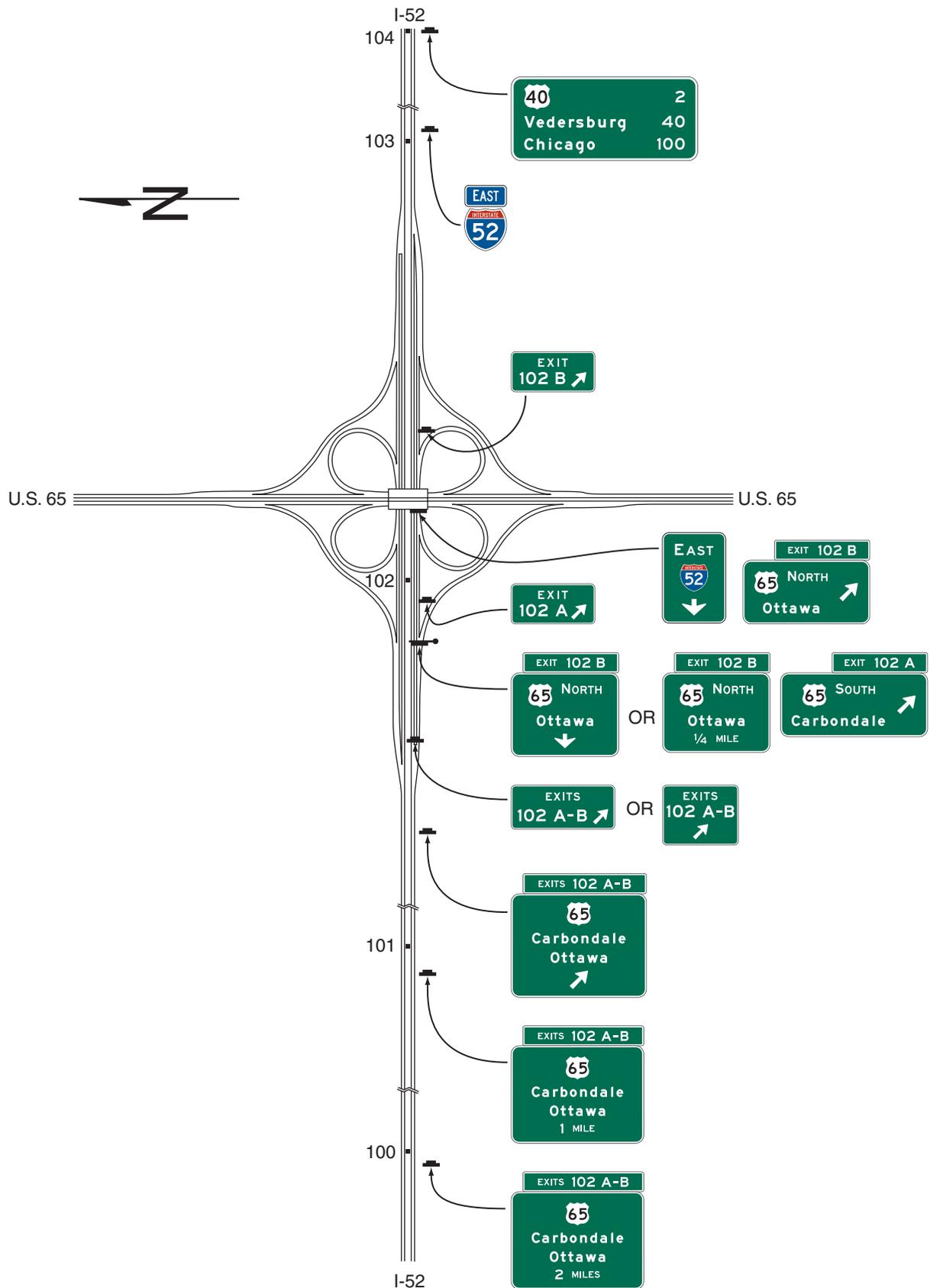
Section 2E.48 Diamond Interchange**Support:**

01 Examples of guide signs for diamond interchanges are shown in Figure 2E-38.

Standard:

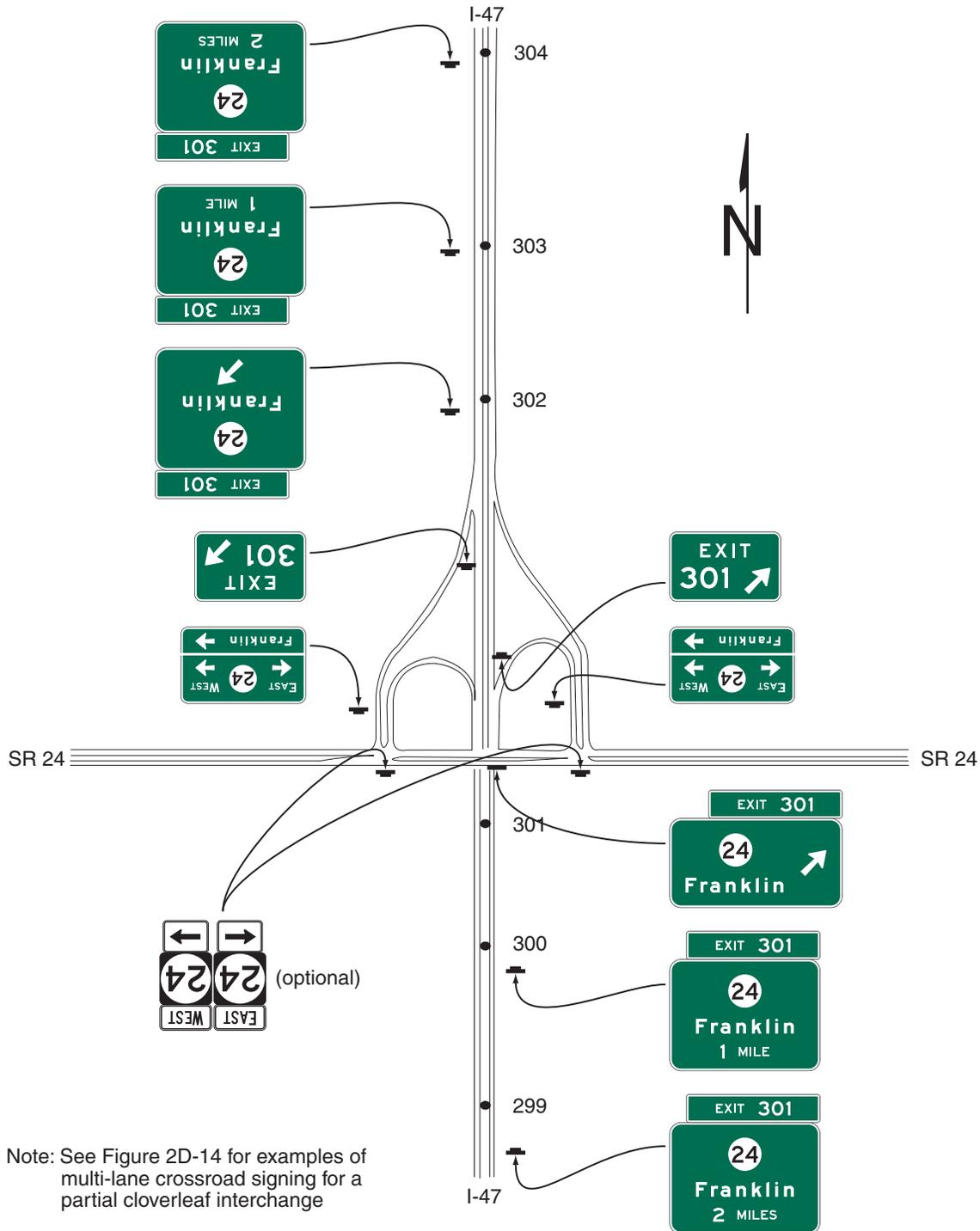
02 **For numbered exits, the singular message EXIT shall be used on the Exit Number plaques (see Section 2E.31) with the Advance Guide and Exit Direction signs. For non-numbered exits, the singular message EXIT shall be used as part of the distance message on the Advance Guide signs.**

Figure 2E-36. Examples of Guide Signs for a Full Cloverleaf Interchange with Collector-Distributor Roadways



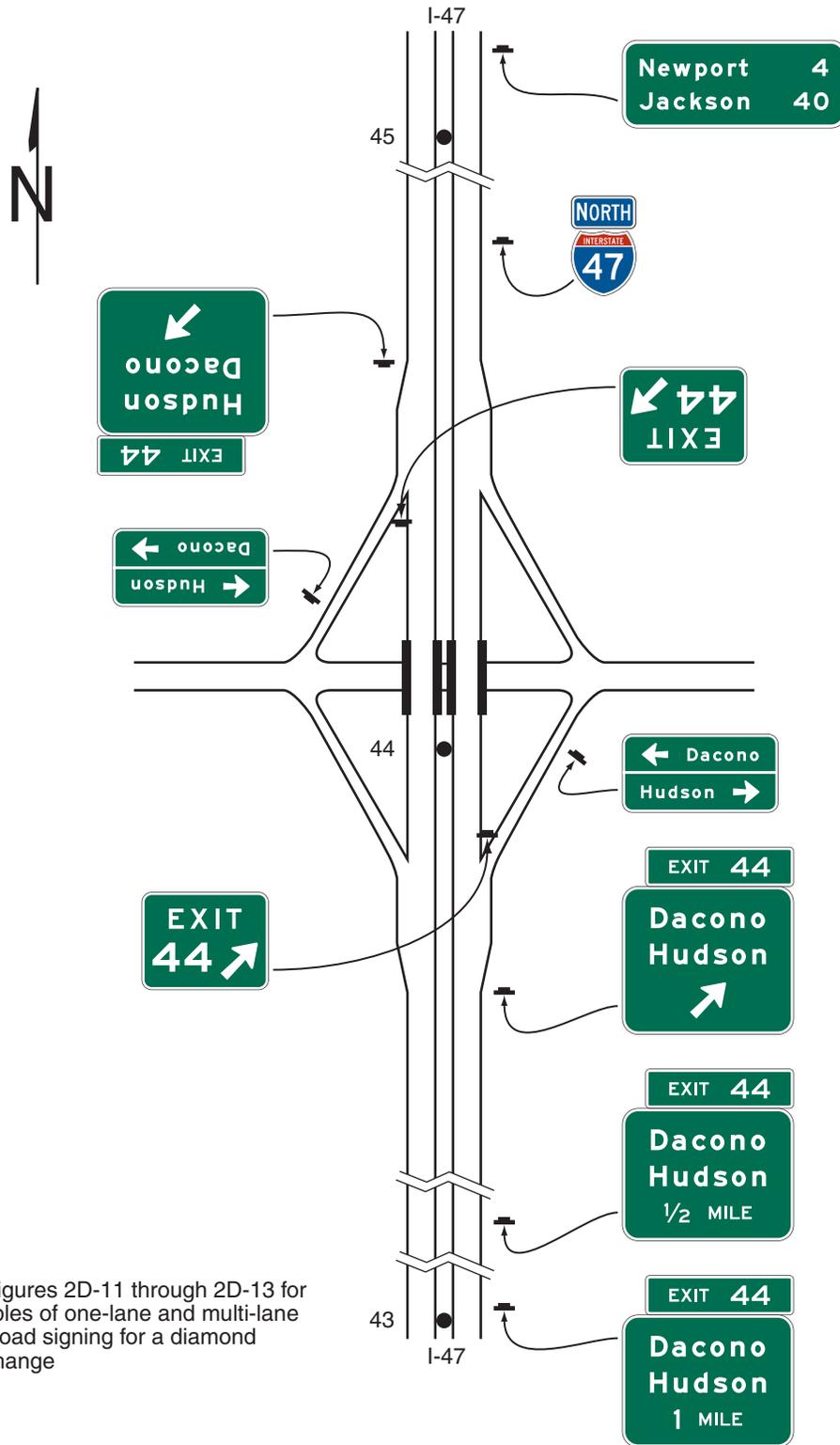
Note: See Figure 2D-15 for examples of multi-lane crossroad signing for a cloverleaf interchange

Figure 2E-37. Examples of Guide Signs for a Partial Cloverleaf Interchange



Note: See Figure 2D-14 for examples of multi-lane crossroad signing for a partial cloverleaf interchange

Figure 2E-38. Examples of Guide Signs for a Diamond Interchange



Note: See Figures 2D-11 through 2D-13 for examples of one-lane and multi-lane crossroad signing for a diamond interchange

Support:

- 03 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 negotiate an exit maneuver from the mainline onto the ramp roadway.

Guidance:

- 04 *When a speed reduction is not necessary, an exit speed sign should not be used.*

Option:

- 05 An Advisory 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.14).

Guidance:

- 06 *The Advisory 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 to allow the driver to decelerate before reaching the curve associated with the exiting maneuver.*

Option:

- 07 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.36).

Guidance:

- 08 *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.49 Diamond Interchange in Urban Area**Support:**

- 01 Examples of guide signs for diamond interchanges in an urban area are shown in Figure 2E-39. This example includes the use of the Community Interchanges Identification sign (see Section 2E.41), which might be useful if two or more interchanges serve the same community.

- 02 In urban areas, street names are often displayed as the principal message in destination signs.

Option:

- 03 If interchanges are too closely spaced to properly locate the Advance Guide signs, they may be placed closer to the exit with the distances displayed adjusted accordingly.

Section 2E.50 Closely-Spaced Interchanges**Support:**

- 01 Section 2E.11 contains information regarding sign spreading where the Exit Direction sign and the Advance Guide sign for the next interchange are mounted overhead. Sign spreading is particularly beneficial where interchanges are closely spaced and overhead signing is used in conjunction with Interchange Sequence signs as provided in Paragraph 2.

Guidance:

- 02 *Interchange Sequence signs (see Section 2E.40) 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-30.*

Standard:

- 03 **Advance Guide signs for closely-spaced interchanges shall show information for only one interchange.**

Section 2E.51 Minor Interchange**Option:**

- 01 Less signing may be used for minor interchanges because such interchanges customarily serve low volumes of local traffic.

Support:

- 02 Examples of guide signs for minor interchanges are shown in Figure 2E-40.

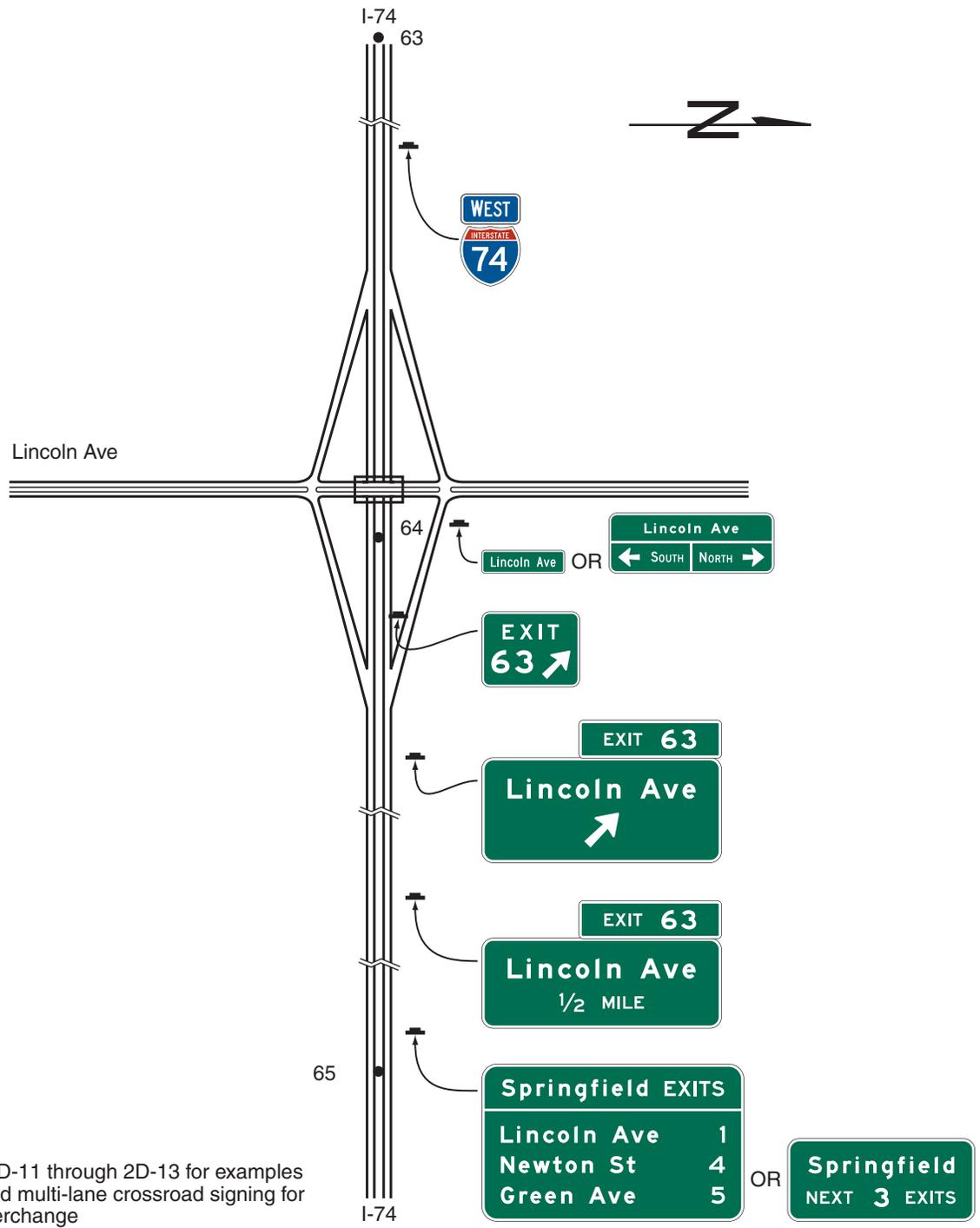
Standard:

- 03 **At least one Advance Guide sign and an Exit Gore sign shall be used at a minor interchange.**

Guidance:

- 04 *An Exit Direction sign should also be used.*

Figure 2E-39. Examples of Guide Signs for a Diamond Interchange in an Urban Area



Section 2E.52 Signing on Conventional Road Approaches and Connecting Roadways

Support:

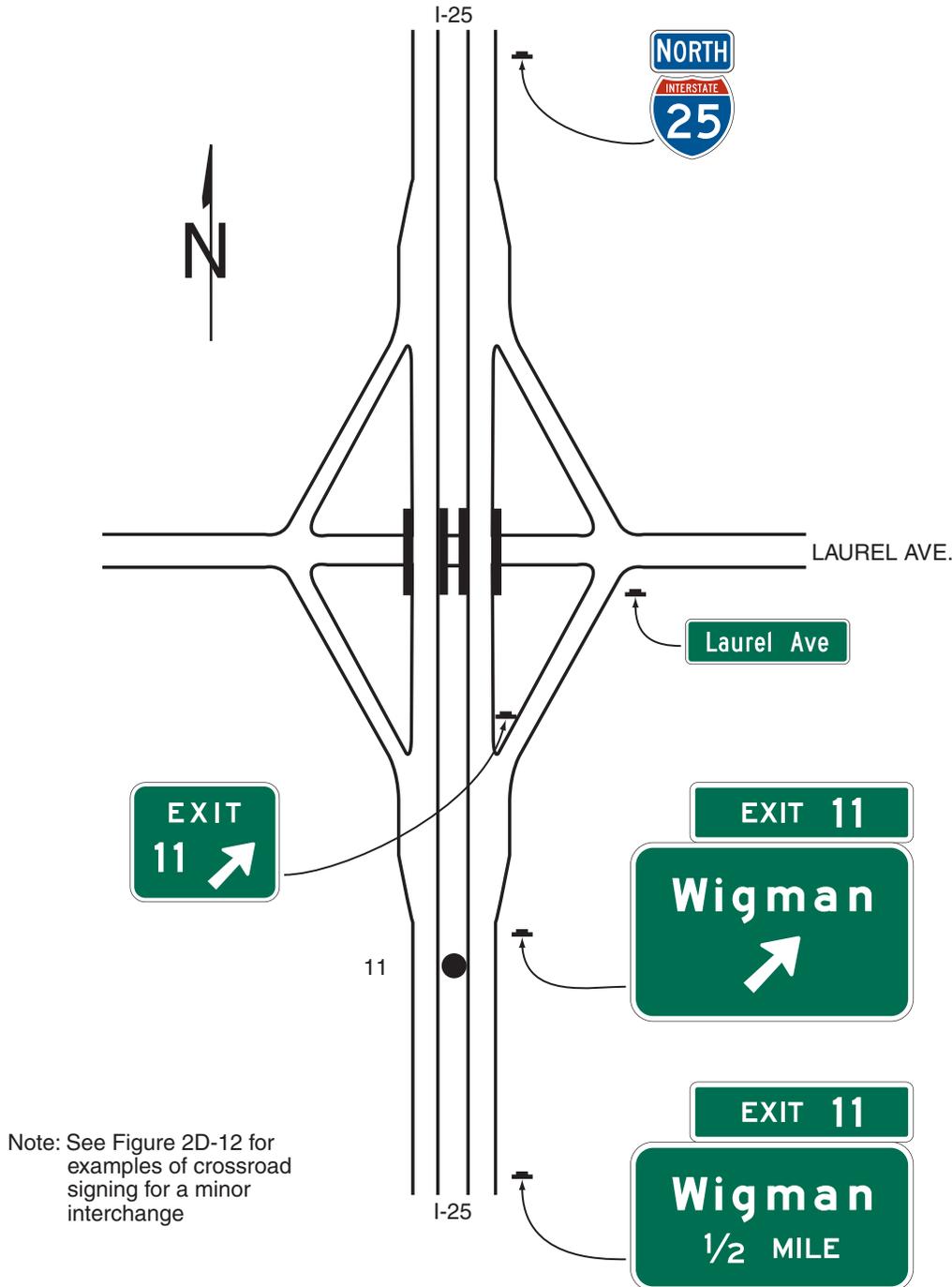
- 01 Section 2D.45 contains information regarding the signing on conventional roads on the approaches to interchanges and the signing on connecting roadways.

Section 2E.53 Wrong-Way Traffic Control at Interchange Ramps

Support:

- 01 Section 2B.41 contains information regarding the use of regulatory signs to deter wrong-way movements at intersections of freeway or expressway ramps with conventional roads, and in the area where entrance ramps intersect with the mainline lanes.

Figure 2E-40. Examples of Guide Signs for a Minor Interchange



02 Section 2D.46 contains information regarding the use of a Directional assembly or a guide sign to mark the entrance to a freeway or expressway from a conventional road.

Section 2E.54 Weigh Station Signing

Standard:

01 Weigh Station signing on freeways and expressways shall be the same as that provided in Section 2D.49, except for lettering size and the advance posting distance for the Exit Direction sign, which shall be located a minimum of 1,500 feet in advance of the gore.

Support:

02 Weigh Station sign layouts for freeway and expressway applications are shown in the “Standard Highway Signs and Markings” book (see Section 1A.11).

CHAPTER 2F. TOLL ROAD SIGNS

Section 2F.01 Scope

Support:

- 01 Toll highways are typically limited-access freeway or expressway facilities. A portion of or an entire route might be a toll highway, or a bridge, tunnel, or other crossing point might be the only toll portion of a highway. A toll highway might be a conventional road. The general signing requirements for toll roads will depend on the type of facility and access (freeway, expressway, or conventional road). The provisions of Chapters 2D and 2E will generally apply for guide signs along the toll facility that direct road users within and off the facility where exit points and geometric configurations are not dependent specifically on the collection of tolls. The aspect of tolling and the presence of toll plazas or collection points necessitate additional considerations in the typical signing needs. The notification of the collection of tolls in advance of and at entry points to the toll highway also necessitate additional modifications to the typical signing.
- 02 The scope of this Section applies to a route or facility on which all lanes are tolled. Chapter 2G contains provisions for the signing of managed lanes within an otherwise non-toll facility that employ tolling or pricing as an operational strategy to manage congestion levels.

Standard:

- 03 **Except where specifically provided in this Chapter, the provisions of other Chapters in Part 2 shall apply to toll roads.**

Section 2F.02 Sizes of Toll Road Signs

Standard:

- 01 **Except as provided in Section 2A.11, the sizes of toll road signs that have standardized designs shall be as shown in Table 2F-1.**

Support:

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

Option:

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

Table 2F-1. Toll Road Sign and Plaque Minimum Sizes

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	Multi-Lane				
Toll Rate	R3-28	2F.05	—	—	114 x 48	114 x 48	—	—
Pay Toll (plaque)	R3-29P	2F.05	—	—	24 x 18	24 x 18	—	—
Take Ticket (plaque)	R3-30P	2F.05	—	—	24 x 18	24 x 18	—	—
Pay Toll XX Miles Cars (price)	W9-6	2F.06	96 x 66	96 x 66	96 x 66	96 x 66	—	—
Pay Toll XX Miles Cars (price) (plaque)	W9-6P	2F.07	288* x 36	288* x 36	288* x 36	288* x 36	—	—
Stop Ahead Pay Toll Cars (price)	W9-6a	2F.08	114 x 66	114 x 66	114 x 66	114 x 66	—	—
Stop Ahead Pay Toll (plaque)	W9-6aP	2F.09	252* x 36	252* x 36	252* x 36	252* x 36	—	—
Last Exit Before Toll (plaque)	W16-16P	2F.10	—	—	252* x 36	252* x 36	—	—
Toll	M4-15	2F.11	24 x 12	24 x 12	36 x 18	36 x 18	24 x 12	36 x 18
No Cash	M4-16	2F.12	24 x 12	24 x 12	36 x 18	36 x 18	24 x 12	36 x 18
Toll Collector Symbol	M4-17	2F.13	—	—	48 x 48	48 x 48	—	—
Exact Change Symbol	M4-18	2F.13	—	—	48 x 48	48 x 48	—	—
ETC Only	M4-20	2F.12	24 x 24	24 x 24	36 x 36	36 x 36	24 x 24	36 x 36

* The width shown represents the minimum dimension. The width shall be increased as appropriate to match the width of the guide sign.

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

Section 2F.03 Use of Purple Backgrounds and Underlay Panels with ETC Account Pictographs

Standard:

- 01 Use of the color purple on any sign shall comply with the provisions of Sections 1A.12 and 2A.10. Except as provided in Sections 2F.12 and 2F.16, purple as a background color shall be used only when the information associated with the appropriate ETC account is displayed on that portion of the sign. The background color of the remaining portion of such signs shall comply with the provisions of Sections 1A.12 and 2A.10 as appropriate for a regulatory, warning, or guide sign. Purple shall not be used as a background color to display a destination, action message, or other legend that is not a display of the requirement for all vehicles to have a registered ETC account.
- 02 If only vehicles with registered ETC accounts are allowed to use a highway lane, a toll plaza lane, an open-road tolling lane, or all lanes of a toll highway or connection, the signs for such lanes or highways shall incorporate the pictograph (see Chapter 2A) adopted by the toll facility's ETC payment system and the regulatory message **ONLY**. Except for ETC pictographs whose predominant background color is purple, if incorporated within the green background of a guide sign, the ETC pictograph shall be on a white rectangular or square panel set on a purple underlay panel with a white border. For rectangular ETC pictographs whose predominant background color is purple, a white border shall be used at the outer edges of the purple rectangle to provide contrast between the pictograph and the sign background color.
- 03 If an ETC pictograph is used on a separate plaque with a guide sign or on a header panel within a guide sign, the plaque or the header panel shall have a purple background with a white border and the ETC pictograph shall have a white border to provide contrast between the pictograph and the background of the plaque or header panel.
- 04 Purple underlay panels for ETC pictographs or purple backgrounds for plaques and header panels shall only be used in the manner described in Paragraphs 1 through 3 to convey the requirement of a registered ETC account on signs for lanes reserved exclusively for vehicles with such an account and on directional signs to an ETC account-only facility from a non-toll facility or from a toll facility that accepts multiple payment forms.

Support:

- 05 Figure 2F-1 shows examples of ETC account pictographs, their use with various background colors, and modifications involving underlay panels.
- 06 Section 2F.04 contains provisions regarding the size of pictographs for ETC accounts.

Section 2F.04 Size of ETC Pictographs

Standard:

- 01 The ETC pictograph (see Chapter 2A) shall be of a size that makes it a prominent feature of the sign legend as necessary for conspicuity for those road users with registered ETC accounts seeking such direction, as well as for those road users who do not have ETC accounts so that it is clear to them to avoid such direction when applicable.

Guidance:

- 02 An ETC pictograph that is in the shape of a horizontal rectangle should have a minimum height between approximately 1.5 and 2 times the upper-case letter height of the principal legend on the sign. The width of an ETC pictograph in the shape of a horizontal rectangle should be between approximately two and three times the height of the pictograph. When the pictograph is the principal legend on the sign, such as for advance guide signs for open-road tolling lanes (see Section 2F.15), the minimum height of a horizontal rectangular ETC pictograph should be consistent with that of a route shield prescribed for the particular application and type of sign.
- 03 For ETC pictographs whose shape is square, circular, or otherwise similar in height and width, or is a vertical rectangle, the same basic principles for conspicuity and placement should be followed. ETC pictographs whose shape is not in that of a horizontal rectangle should be suitably sized to facilitate conspicuity as described in Paragraph 1 and should be of a similar approximate area as the horizontal rectangular pictographs designed in accordance with the height and width as provided in Paragraph 2.

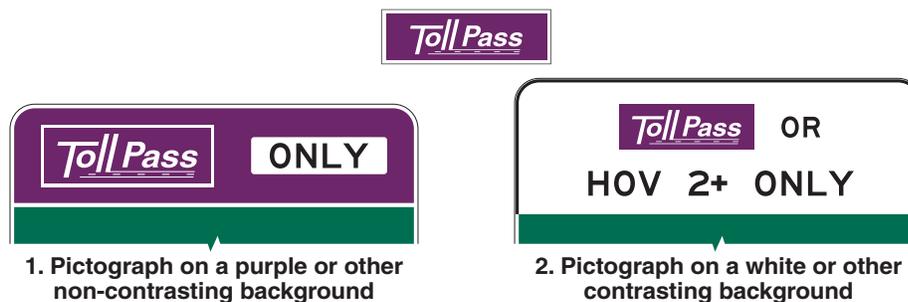
Section 2F.05 Regulatory Signs for Toll Plazas

Support:

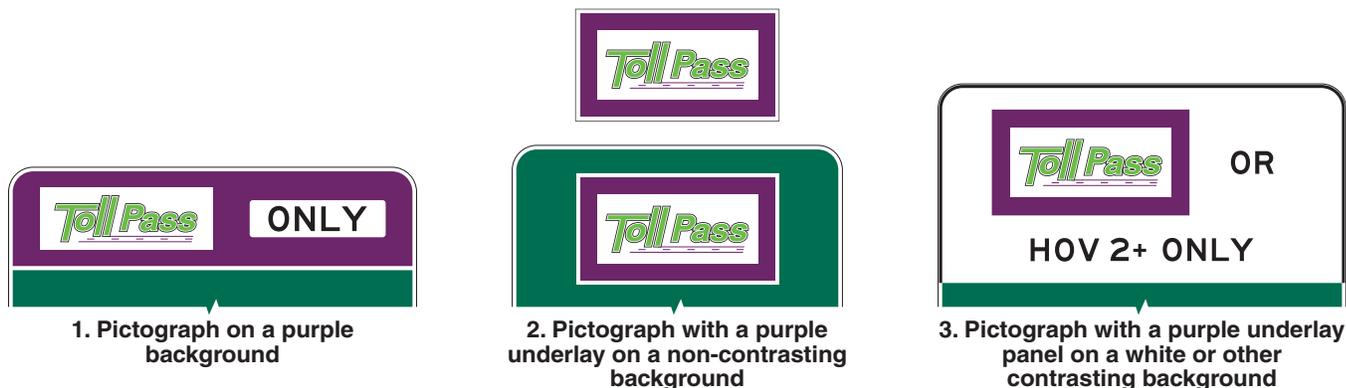
- 01 Toll plaza operations often include lane-specific restrictions on vehicle type, forms of payment accepted, and speed limits or required stops. Vehicles are typically required to come to a stop to pay the toll or receive a toll ticket in the attended and exact change or automatic lanes. Electronic toll collection (ETC) lanes with favorable geometrics typically allow vehicles to move through the toll plaza without stopping, but usually within a set regulatory speed limit or advisory speed. In some ETC lanes and in most lanes that accommodate non-ETC vehicles, a stop might be required while the ETC payment is processed because of geometric or other conditions.

Figure 2F-1. Examples of ETC Account Pictographs and Use of Purple Backgrounds and Underlay Panels

A - PICTOGRAPH DESIGN WITH A PURPLE BACKGROUND AND A WHITE CONTRASTING BORDER



B - PICTOGRAPH DESIGN WITH A BACKGROUND COLOR OTHER THAN PURPLE, SHOWN ON A PURPLE UNDERLAY PANEL WITH A WHITE CONTRASTING BORDER



Guidance:

02 Regulatory signs applicable only to a particular lane or lanes should be located in a position that makes their applicability clear to road users approaching the toll plaza.

03 Regulatory signs, or regulatory panels within guide signs, indicating restrictions on vehicle type and forms of toll payment accepted at a specific toll plaza lane should be installed over the applicable lane either on the toll plaza canopy or on a separate structure immediately in advance of the canopy located in a manner such that each sign is clearly related to an individual toll lane.

Support:

04 Section 2F.13 contains information regarding the incorporation of regulatory messages into guide signs for toll plazas.

05 Section 2F.16 contains information regarding the design and use of toll plaza canopy signs.

Guidance:

06 One or more Speed Limit (R2-1) signs (see Section 2B.13) should be installed in the locations provided in Paragraph 8 for an ETC-Only lane at a toll plaza in which an enforceable regulatory speed limit is established for a lane in which it is intended that vehicles move through the toll plaza without stopping while toll payments requiring stops occur in other lanes at the toll plaza. The speed limit displayed on the signs should be based on an engineering study taking into account the geometry of the plaza and the lanes and other appropriate safety and operational factors.

07 A Speed Limit (R2-1) sign should not be installed for a toll plaza lane that is controlled by a STOP (R1-1) sign or where a stop is required.

Option:

08 Speed limit signs may be installed over the applicable lane on the toll plaza canopy, on the approach end of the toll booth island, on the toll booth itself, or on a vertical element of the canopy structure. Down arrows or diagonally downward-pointing directional arrows may be used to supplement the speed limit signs if an engineering study or engineering judgment indicates that the arrow is needed to clarify the applicability of a sign to a specific lane or to improve compliance.

Standard:

- 09 A **STOP (R1-1) sign shall not be installed for a toll plaza lane that is operated as an ETC-Only lane and that is designed for tolls to be collected while vehicles continue moving.**

Option:

- 10 A STOP (R1-1) sign may be installed to require vehicles to come to a complete stop to pay a toll in an attended or exact change lane, even if that lane is also available for optional use by vehicles with registered ETC accounts. A PAY TOLL (R3-29P) or TAKE TICKET (R3-30P) plaque (see Figure 2F-2), as appropriate to the operation, may be installed directly under the STOP (R1-1) sign for a toll plaza lane, if needed.

- 11 The mounting height of the STOP sign and any supplemental plaque may be less than the normal mounting height requirements if constrained by the physical features of the toll island or toll plaza.

- 12 The lateral offset of a STOP or other regulatory sign located within a toll plaza island may be reduced to a minimum of 1 foot from the face of the toll island or raised barrier to the nearest edge of the sign.

Guidance:

- 13 *If used, a STOP (R1-1) sign for a toll plaza cash payment lane should be located in a longitudinal position as near as practical to the point where a vehicle is expected to stop to pay the toll or take a ticket.*

Option:

- 14 A Toll Rate (R3-28) sign (see Figure 2F-2) may be installed in advance of the toll plaza to indicate the toll applicable to the various vehicle types.

Guidance:

- 15 *If used, the Toll Rate (R3-28) sign should be located between the toll plaza and the first advance sign informing road users of the toll plaza.*

- 16 *The R3-28 sign should not contain more than three lines of legend. Each line that shows a toll amount should display only a single toll amount.*

Option:

- 17 Additional toll rate information exceeding three lines of legend may be displayed on the toll booth adjacent to the payment window of an attended lane or the payment receptacle of an exact change or automatic lane where it is visible to a road user who has stopped to pay the toll, but is not visible to approaching road users who have not yet entered the toll lane.

Section 2F.06 Pay Toll Advance Warning Sign (W9-6)**Standard:**

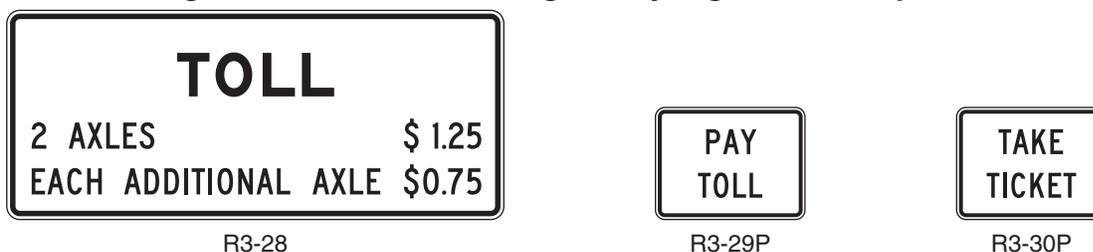
- 01 **The Pay Toll Advance Warning (W9-6) sign shall be a horizontal rectangle with a black legend and border on a yellow background. The legend shall include the distance to the toll plaza and, except for toll-ticket facilities, the toll for passenger or 2-axle vehicles (see Figure 2F-3). Where the toll for passenger or 2-axle vehicles is variable by time of day, a changeable message element shall be incorporated into the W9-6 sign to display the toll in effect. For toll plazas where road users entering a toll-ticket facility are issued a toll ticket, the legend PAY TOLL shall be replaced with a suitable legend such as TAKE TICKET.**

Guidance:

- 02 *The Pay Toll Advance Warning sign should be installed overhead at approximately 1 mile and 1/2 mile in advance of mainline toll plazas at which some or all lanes are required to come to a stop to pay a toll (see Sections 2F.14 and 2F.15).*

Option:

- 03 If there is insufficient space for the W9-6 sign at the 1-mile or 1/2-mile advance locations, the Pay Toll Advance Warning (W9-6P) plaque (see Section 2F.07) may be installed at those advance locations above the appropriate guide sign(s) that relate to toll payment types.

Figure 2F-2. Toll Plaza Regulatory Signs and Plaques

- 04 An additional W9-6 sign may be installed approximately 2 miles in advance of a mainline toll plaza. This sign may be either overhead or post-mounted.
- 05 If the visibility of a ramp toll plaza at which some or all lanes are required to come to a stop to pay a toll is limited, the W9-6 sign may also be installed in advance of the ramp toll plaza.

Section 2F.07 Pay Toll Advance Warning Plaque (W9-6P)

Option:

- 01 The Pay Toll Advance Warning (W9-6P) plaque (see Figure 2F-3) may be installed above the appropriate guide sign(s) relating to toll payment types at the 1-mile and/or 1/2-mile advance locations on the approach to a toll plaza if there is insufficient space for the W9-6 sign (see Section 2F.06) at those advance locations.

Standard:

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

Option:

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

Figure 2F-3. Toll Plaza Warning Signs and Plaques



W9-6



W9-6a



W9-6P



W9-6aP



W16-16P

Section 2F.08 Stop Ahead Pay Toll Warning Sign (W9-6a)**Standard:**

- 01 The Stop Ahead Pay Toll (W9-6a) sign shall be a horizontal rectangle with a black legend and border on a yellow background. The legend shall include STOP AHEAD PAY TOLL and, except for toll-ticket facilities, the toll for passenger or 2-axle vehicles (see Figure 2F-3). Where the toll for passenger or 2-axle vehicles is variable by time of day, a changeable message element shall be incorporated into the W9-6a sign to display the toll in effect. For toll plazas where road users entering a toll-ticket facility are issued a toll ticket, the legend PAY TOLL shall be replaced with a suitable legend such as TAKE TICKET.

Guidance:

- 02 The Stop Ahead Pay Toll sign should be installed overhead downstream from the W9-6 sign that is 1/2 mile in advance of a mainline toll plaza where some or all of the lanes are required to come to a stop to pay a toll (see Sections 2F.14 and 2F.15). The location of the overhead sign should coincide with the approximate location where the mainline lanes begin to widen on the approach to the toll plaza lanes.
- 03 Where open-road tolling is used in addition to a toll plaza at a particular location, the W9-6a sign should be located such that the message is clearly related to the lanes that access the toll plaza and not to the open-road tolling lanes.

Option:

- 04 If there is insufficient space for the W9-6a sign at the recommended location, the Stop Ahead Pay Toll (W9-6aP) plaque (see Section 2F.09) may be installed at that location above the appropriate guide sign that relates to toll payment types.
- 05 If the visibility of a ramp toll plaza at which some or all lanes are required to come to a stop to pay a toll is limited, the W9-6a sign may also be installed in advance of the ramp toll plaza.

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

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

Standard:

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

Option:

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

Section 2F.10 LAST EXIT BEFORE TOLL Warning Plaque (W16-16P)**Guidance:**

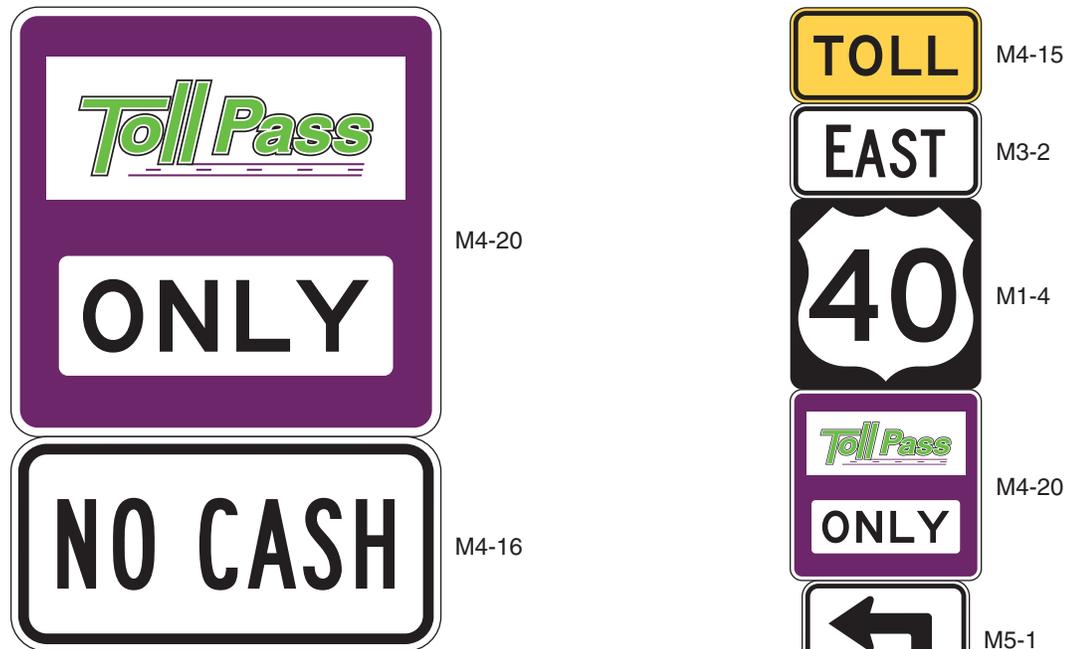
- 01 The LAST EXIT BEFORE TOLL (W16-16P) plaque (see Figure 2F-3) should be used to notify road users of the last exit from a highway before it becomes a facility on which toll payments are required. The plaque should be installed above or below the appropriate guide signs for the exit (see Sections 2E.30 and 2E.33).

Standard:

- 02 The W16-16P plaque shall have a black legend and border on a yellow background.

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

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

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

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

Example Route Sign
Assembly

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

Standard:

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

Option:

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

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

Support:

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

Standard:

- 04 Directional assemblies for entrances to a toll highway or to a road leading directly to a toll highway with no opportunity to exit before paying or being charged a toll, shall clearly indicate that the facility is a toll facility. The TOLL (M4-15) auxiliary sign (see Section 2F.11) shall be used above the route sign of a numbered toll facility in any route sign assembly that provides directions to the toll route from another highway.
- 05 A rectangular panel with the black legend TOLL on a yellow background shall be incorporated into the guide signs leading road users to a toll highway (see Figure 2F-5).

06 **Guide signs for toll highways, toll plazas, and tolled or priced managed lanes (see Chapter 2G) shall have white legends and borders on green backgrounds, except as specifically provided by Sections 2F.13 through 2F.16.**

Option:

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

Standard:

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

Support:

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

Standard:

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

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

Support:

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

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

Option:

14 Where a toll highway on which tolls are collected only electronically also accepts payments from registered toll account users and those road users not registered in a toll account program are assessed a nominal surcharge in addition to the toll, or registered toll account users are assessed a discounted toll, such information may be displayed on a separate information sign near the entrance to such a facility (see Figure 2F-6).

Support:

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

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

Option:

17 Where a facility will accept payments from other systems' accounts in addition to its primary ETC-account payment system, such information may be displayed on a separate information sign near the entrances to such a facility or in advance of a toll plaza or open-road tolling lanes, as space allows between primary signs.

Guidance:

18 *Guide signs for toll plazas should be designed in accordance with the general principles of guide signs and the specific provisions of Chapter 2E.*

19 *Signs for toll plazas should systematically provide road users with advance and toll plaza lane-specific information regarding:*

- A. *The amount of the toll, the types of payment accepted, and the type(s) of registered ETC accounts accepted for payment;*
- B. *Which lane or lanes are required or allowed to be used for each available payment type; and*
- C. *Restrictions on the use of a toll plaza lane or lanes by certain types of vehicles (such as cars only or no trucks).*

Standard:

20 **Signs for attended lanes at toll plazas shall include word messages such as FULL SERVICE, CASH, CHANGE, or RECEIPTS (see Figures 2F-8 through 2F-11).**

Option:

- 21 Signs for Attended lanes at toll plazas may incorporate the Toll Taker (M4-17) symbol (see Figures 2F-8 and 2F-9), in a size that makes the symbol the predominant feature of the sign, to supplement the required word message.

Standard:

- 22 Signs for Exact Change lanes at toll plazas shall incorporate an appropriate word message, such as EXACT CHANGE and the amount of the toll for passenger vehicles (see Figures 2F-8 through 2F-11).

Option:

- 23 Signs for Exact Change lanes at toll plazas may include the Exact Change (M4-18) symbol (see Figures 2F-8 and 2F-9), in a size that makes the symbol the predominant feature of the sign, to supplement the required word message.

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

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



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



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

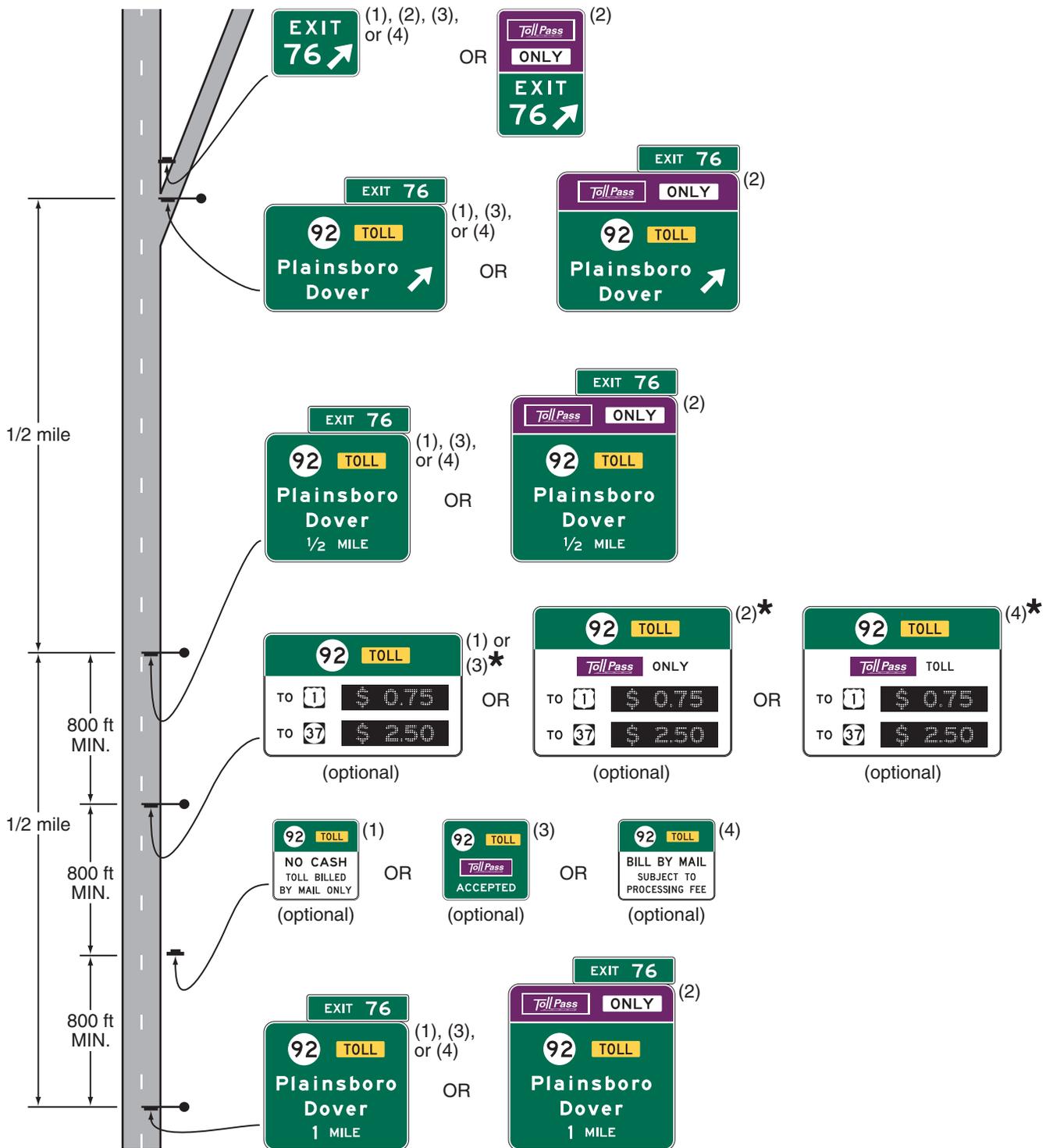


(the toll entrance is the only connection provided in the vicinity)

(an alternate non-toll entrance is provided in the vicinity)

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

Figure 2F-6. Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only



- (1) All tolls are billed through license plate recognition only. A registered toll account or ETC device is not needed.
- (2) All tolls are billed through registered toll accounts only. All vehicles must be registered in an ETC account program.
- (3) Tolls are billed through license plate recognition in which registration in a toll account program is not required. Toll payments are also accepted from registered toll accounts. Registered toll accounts might receive a discount from the toll amount displayed on the signs.
- (4) Tolls are billed through license plate character recognition or registered toll accounts. Vehicles not registered in a toll account program are assessed a nominal processing fee in addition to the toll amount displayed on the signs.
- * For managed toll highways only (see Chapter 2G)

Figure 2F-7. Examples of Guide Signs for Alternative Toll and Non-Toll Ramp Connections to a Non-Toll Highway

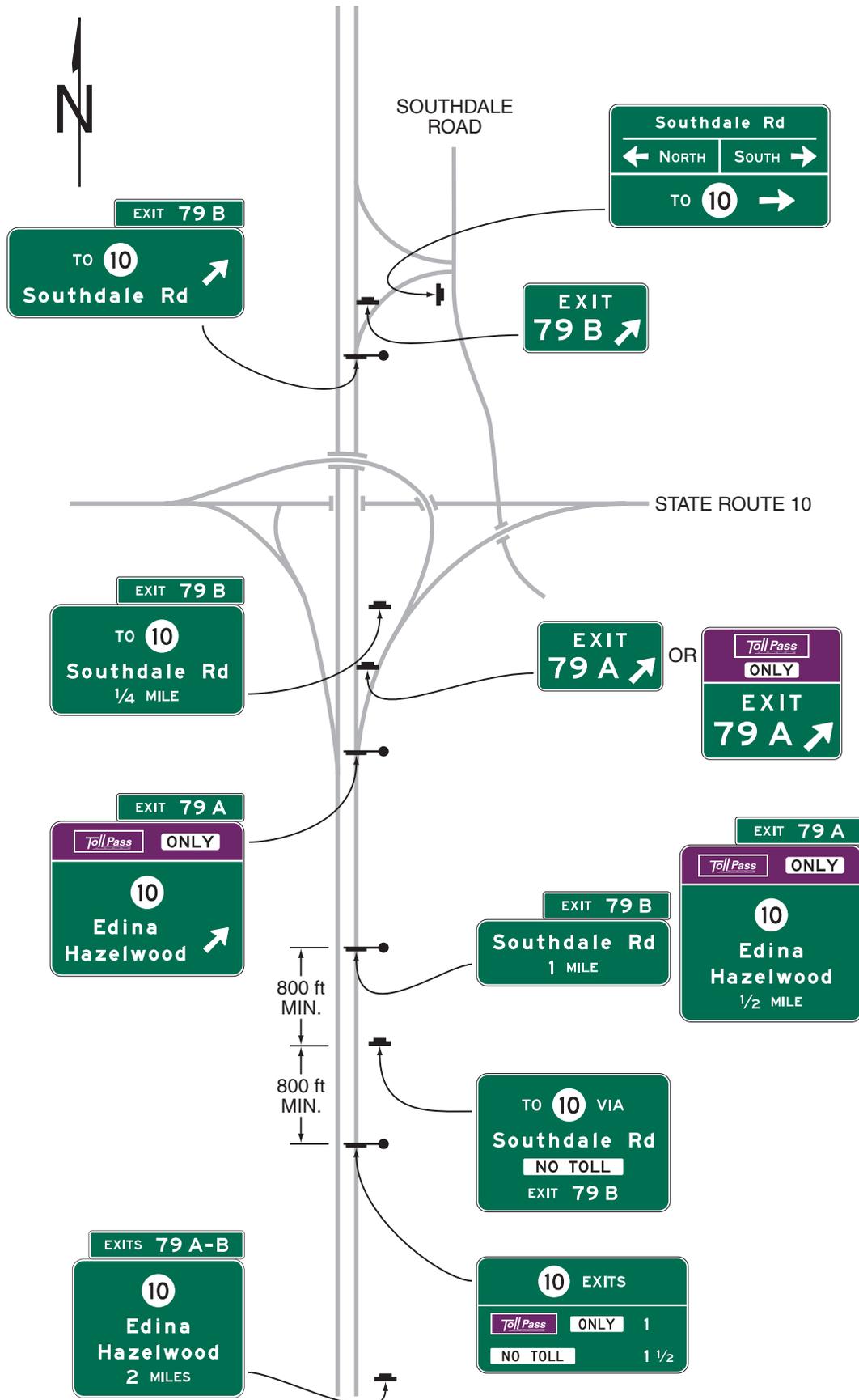


Figure 2F-8. Examples of Conventional Toll Plaza Advance Signs



Notes:

1. The M4-17 symbol is optional for an attended lane.
2. The M4-18 symbol is optional for an exact change lane.
3. The ETC pictograph that is shown is only an example. The pictograph for the toll facility's adopted ETC system shall be used.

Figure 2F-9. Examples of Toll Plaza Canopy Signs



Attended Lane with an
Optional M4-17 Toll
Collector Symbol

Exact Change or ETC Account Lane with an
Optional M4-18 Exact Change Symbol

ETC Account-Only Lane

- * Optional flashing yellow beacons that are separated from any lane-use control signals for the lane (see Section 2F.16)
- ** The ETC pictographs that are shown are only examples. The pictograph for the toll facility's adopted ETC system shall be used.

Standard:

- 24 If used, the M4-17 and M4-18 symbols shall be used only as panels within guide signs that accompany the required word messages. The M4-17 and M4-18 symbols shall not be used as an independent sign or within a sign assembly.
- 25 If only vehicles with registered ETC accounts are allowed to use a toll plaza lane, the signs for such lanes shall incorporate the pictograph adopted by the toll facility's ETC payment system and the regulatory message ONLY (see Figures 2F-1, 2F-8, 2F-9, and 2F-11). The use, size, and placement of the ETC pictograph shall comply with the provisions of Sections 2F.03 and 2F.04.

Option:

- 26 The ETC payment system's pictograph, without a purple underlay or purple header panel, may be used on signs for Exact Change or attended lanes at toll plazas to indicate that vehicles with registered ETC accounts may also use those lanes (see Figure 2F-9).

Section 2F.14 Advance Signs for Conventional Toll Plazas

Guidance:

- 01 For conventional toll plazas (those without a divergence onto a separate alignment from mainline-aligned open-road tolling or ETC-Only lanes), one or more sets of overhead advance guide signs complying with the provisions of this Section should be provided. The advance guide signs for multi-lane toll plazas should provide information regarding which lanes to use for all of the toll payment methods accepted at the toll plaza. These signs should include toll plaza lane numbers (if used), or action messages or lane-use information such as LEFT LANE(S), CENTER LANE(S), RIGHT LANE(S), or down arrows over the approximate center of each applicable lane. These signs should also incorporate regulatory messages indicating any restrictions or prohibitions on the use of the lanes associated with the various types of payment methods by certain types of vehicles. For mainline toll plazas, these signs should be at least 1/2 mile in advance of the toll plaza, and farther if practical.

- 02 *Additional guide signs with lane information for the toll payment types should be provided between approximately 1/4 mile and 800 feet in advance of the toll plaza at a location that avoids or minimizes obstruction of toll plaza canopy signs (see Section 2F.16) and lane-use control signals.*
- 03 *The number, mounting, and/or spacing of sets of advance signs for approaches to toll plazas on ramps, toll bridges, or tunnels, to accommodate a limited distance to the plaza from an intersection or from the start of the approach road to the bridge or tunnel, should be based on an engineering study or engineering judgment.*
- Support:
- 04 Figure 2F-10 shows examples of advance signs for a conventional toll plaza.

Section 2F.15 Advance Signs for Toll Plazas on Diverging Alignments from Open-Road ETC Account-Only Lanes

Support:

- 01 Open-Road ETC lanes are sometimes located on the normal mainline alignment while the lanes for other toll payment methods are located at a toll plaza on a separate alignment (see Figure 2F-11). Since road users paying cash tolls must diverge from the mainline alignment, similar to a movement for an exit, it is important that the guide signs in advance of and at the point of divergence clearly indicate the required lane use and/or movements.
- Guidance:*
- 02 *For toll plazas located on a separate alignment that diverges from mainline-aligned Open-Road ETC lanes where vehicles are required to have a registered ETC account to use the Open-Road Tolling lanes, overhead advance signs should be provided at approximately 1 mile and 1/2 mile in advance of the divergence point. Both the 1-mile and 1/2-mile advance signs should include:*
- A. *The ETC (pictograph) Account-Only guide sign (see Figures 2F-8 and 2F-11) with a down arrow over the center of each lane that will become an Open-Road ETC lane;*
 - B. *For the lane or lanes which will diverge to a toll plaza, guide signs conforming to the provisions of Section 2F.13, indicating which lane or lanes will diverge to the toll plaza for the various cash toll payment methods; and*
 - C. *Regulatory signs, plaques, or panels within the guide signs, indicating any restrictions or prohibitions of certain types of vehicles from toll plaza lanes associated with the various types of payment methods.*
- 03 *At or near the theoretical gore of the divergence point, an additional set of overhead guide signs should be provided and should include:*
- A. *The ETC (pictograph) Account-Only guide sign (see Figures 2F-8 and 2F-11) with a down arrow over the center of each Open-Road ETC lane;*
 - B. *Guide signs conforming to the provisions of Section 2F.13, with diagonally upward-pointing directional arrow(s) over the approximate center of each lane indicating the direction of the divergence, and providing lane information for all types of payment methods accepted at the toll plaza; and*
 - C. *Regulatory signs, plaques, or panels within the guide signs, indicating any restrictions or prohibitions on the use of the toll plaza lanes associated with the various types of payment methods by certain types of vehicles.*
- 04 *Approximately 800 feet in advance of the toll plaza at a location that avoids or minimizes any obstruction of the toll plaza canopy signs (see Section 2F.16) and lane-use control signals, an additional set of overhead advance signs with lane information for the toll payment types should be provided.*

Standard:

- 05 **The use of down and directional arrows on the signs at the locations described in Paragraphs 2 through 4 shall comply with the provisions of Section 2D.08.**
- Support:
- 06 Figure 2F-11 shows an example of advance signs for toll plazas on a diverging alignment from Open-Road ETC Account-Only Lanes.
- 07 Section 4K.02 contains information regarding the use of lane-use control signals for Open-Road ETC lanes for temporary lane closure purposes.

Figure 2F-10. Examples of Mainline Toll Plaza Approach and Canopy Signing

A - ALL TOLL PLAZA LANES ATTENDED
(NO AUTOMATIC OR ELECTRONIC
COLLECTION EQUIPMENT)

B - EXACT CHANGE AND ATTENDED TOLL LANES

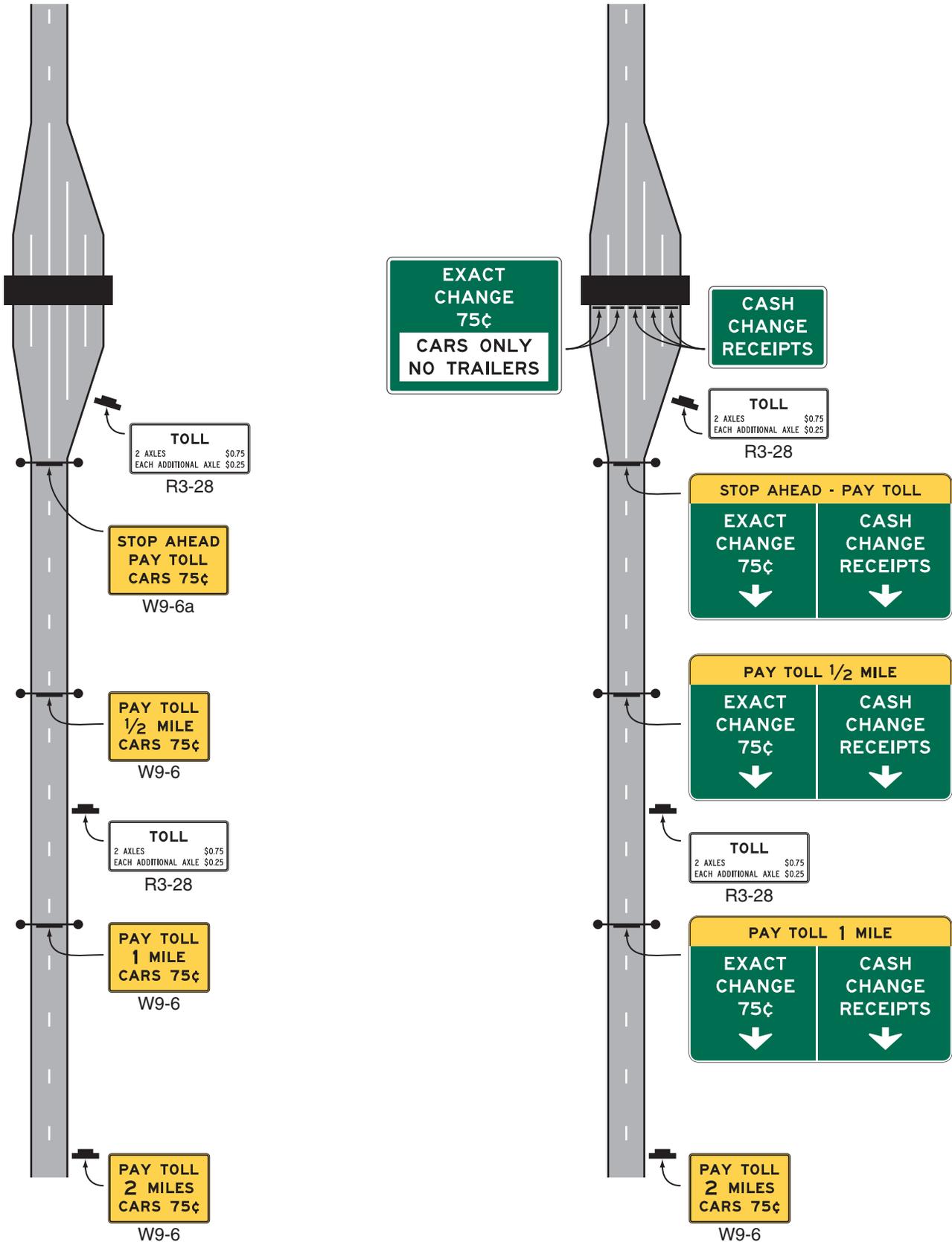
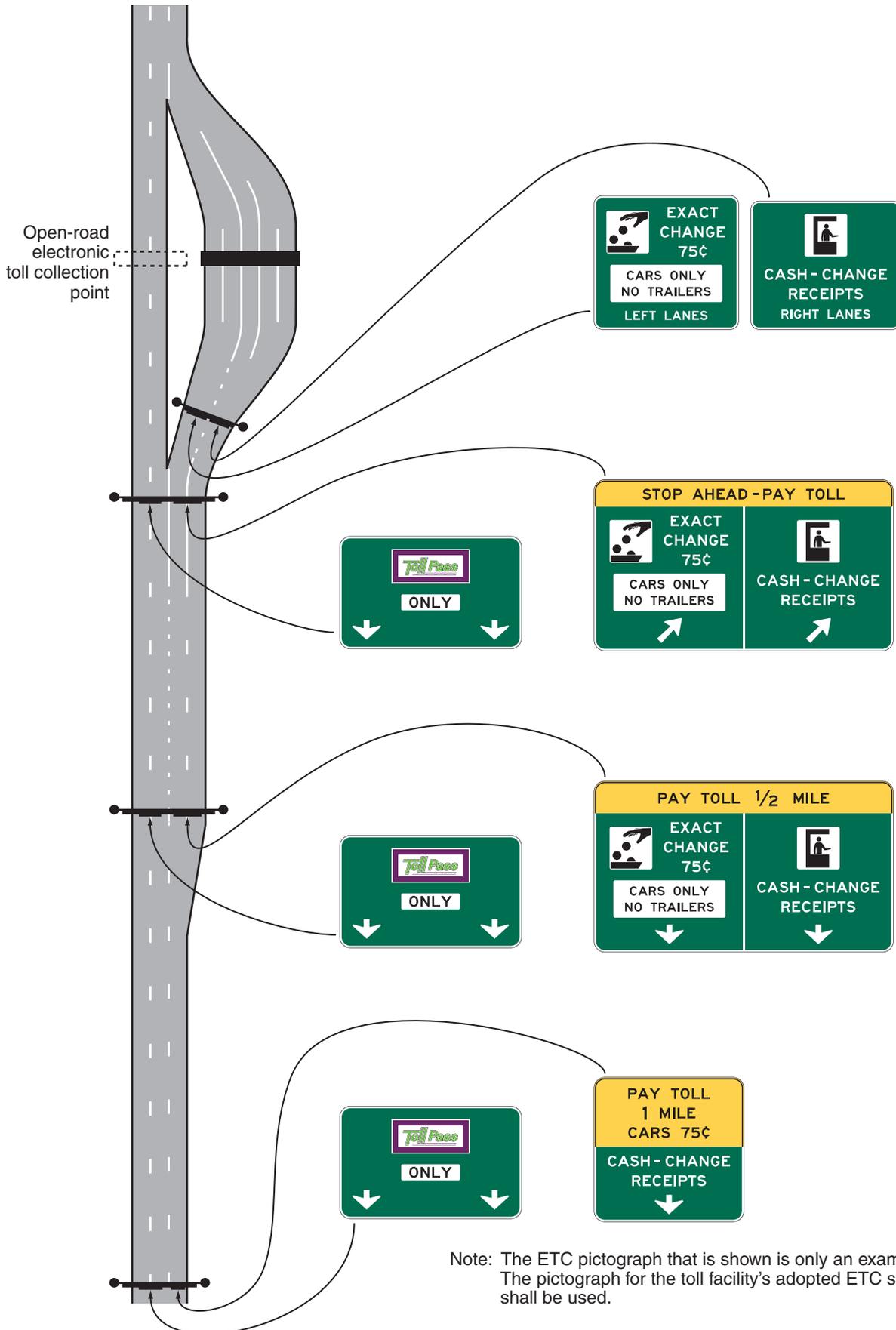


Figure 2F-11. Examples of Guide Signs for a Mainline Toll Plaza on a Diverging Alignment from Open-Road ETC Lanes



Section 2F.16 Toll Plaza Canopy Signs

Standard:

01 A sign complying with the provisions of Section 2F.13 shall be provided above the center of each lane that is not an Open-Road ETC lane, mounted on or suspended from the toll plaza canopy, or on a separate structure immediately in advance of the plaza located such that each sign is clearly related to an individual toll lane, indicating the payment type(s) accepted in the lane and any restrictions or prohibitions of certain types of vehicles that apply to the lane. Except for toll-ticket systems, the toll for passenger or 2-axle vehicles shall be included on the canopy sign or on a separate sign mounted on the upstream side of the tollbooth.

02 The background color of a canopy sign for an ETC Account-Only toll plaza lane shall be purple (see Figure 2F-9).

Option:

03 Where vehicles are required to have a registered ETC account to use the lane, one or two flashing yellow beacons (see Section 4K.04) may supplement a canopy sign over an ETC Account-Only lane to call special attention to the location of the ETC Account-Only lane within the plaza.

04 The canopy sign for an ETC-Only toll plaza lane in which a regulatory speed limit is not posted and in which vehicles are not required to stop may display an advisory speed within a horizontal rectangular panel with a black legend and yellow background within the bottom portion of the canopy sign.

Standard:

05 Flashing beacons supplementing a canopy sign over an ETC Account-Only lane shall be mounted directly above or alongside the sign in a manner that is separated from any lane-use control signals for that lane (see Figure 2F-9).

06 For multi-lane toll plazas, lane-use control signals (see Section 4K.02) shall be provided above the center of each toll plaza lane that is not an Open-Road ETC lane to indicate the open or closed status of each lane. Lane-use control signals shall not be used to call attention to a lane for a specific toll payment type such as ETC Account-Only lanes.

Support:

07 Part 6 contains information regarding the closing of a lane for temporary traffic control purposes.

08 Figure 2F-9 shows examples of toll plaza canopy signs.

Section 2F.17 Guide Signs for Entrances to ETC Account-Only Facilities

Support:

01 Some toll highways, bridges, and tunnels are restricted to use only by vehicles with a specific registered ETC account.

Standard:

02 Where vehicles are required to have a registered ETC account to use an ETC Account-Only facility, guide signs for the facility shall comply with the applicable provisions of Chapter 2E and specifically with the applicable provisions of Section 2F.13.

03 Guide signs for the entrance ramps to such ETC Account-Only facilities shall incorporate the pictograph of the toll facility's ETC payment system and the word ONLY in a header panel or plaque designed in accordance with the provisions of Section 2F.13 (see Figure 2F-5).

Support:

04 Section 2F.12 contains information regarding ETC-Only auxiliary signs for use with route signs in route sign assemblies.

Section 2F.18 ETC Program Information Signs

Standard:

01 Except as provided in Paragraph 2, signs that inform road users of telephone numbers, Internet addresses, including domain names and uniform resource locators (URLs), or e-mail addresses for enrolling in an ETC program of a toll facility or managed lane, obtaining an ETC transponder, and/or obtaining ETC program information shall only be installed in rest areas, parking areas, or similar roadside facilities where the signs are viewed only by pedestrians or occupants of parked vehicles.

Option:

02 ETC program information signs displaying telephone numbers that have no more than four characters may be installed on roadways in locations where they will not obscure the road user's view of higher priority traffic control devices and that are removed from key decision points where the road user's view is more appropriately focused on other traffic control devices, roadway geometry, or traffic conditions, including exit and entrance ramps, intersections, toll plazas, temporary traffic control zones, and areas of limited sight distance.

CHAPTER 2G. PREFERENTIAL AND MANAGED LANE SIGNS

Section 2G.01 Scope

Support:

- 01 Preferential lanes are lanes designated for special traffic uses such as high-occupancy vehicles (HOVs), light rail, buses, taxis, or bicycles. Preferential 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.
- 02 Preferential lanes might be barrier-separated (on a separate alignment or physically separated from the other travel lanes by a barrier or median), buffer-separated (separated from the adjacent general-purpose lanes only by a narrow buffer area created with longitudinal pavement markings), or contiguous (separated from the adjacent general-purpose lanes only by a lane line). Preferential lanes might allow continuous access with the adjacent general-purpose lanes or restrict access only to designated locations. Preferential lanes might be operated in a constant direction or operated as reversible lanes. Some reversible preferential lanes on a divided highway might be operated counter-flow to the direction of traffic on the immediately adjacent general-purpose lanes.
- 03 Preferential lanes might be operated on a 24-hour basis, for extended periods of the day, during peak travel periods only, during special events, or during other activities.
- 04 Open-road tolling lanes and toll plaza lanes that segregate traffic based on payment method are not considered preferential lanes. Chapter 2F contains information regarding signing of open-road tolling lanes and toll plaza lanes.
- 05 Managed lanes typically restrict access with the adjacent general-purpose lanes to designated locations only.
- 06 Under certain operational strategies, such as the occupancy requirement of an HOV lane changing in response to actual congestion levels, a managed lane is a special type of preferential lane (see Sections 2G.03 through 2G.07).
- 07 A managed lane operated on a real-time basis in response to changing conditions might be operated as an HOV lane for a period of time as needed to manage congestion levels.
- 08 Sections 2G.16 through 2G.18 contain additional information regarding signs for managed lanes that use tolling or pricing as a management strategy.
- 09 Section 9B.04 contains information regarding Preferential Lane signs for bike lanes.

Section 2G.02 Sizes of Preferential and Managed Lane Signs

Standard:

- 01 **Except as provided in Section 2A.11, the sizes of preferential and managed lane signs that have standardized designs shall be as shown in Table 2G-1.**

Support:

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

Option:

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

Section 2G.03 Regulatory Signs for Preferential Lanes – General

Standard:

- 01 **When a preferential lane is established, the Preferential Lane regulatory signs (see Figure 2G-1) and pavement markings (see Chapter 3D) for these lanes shall be used to advise road users.**

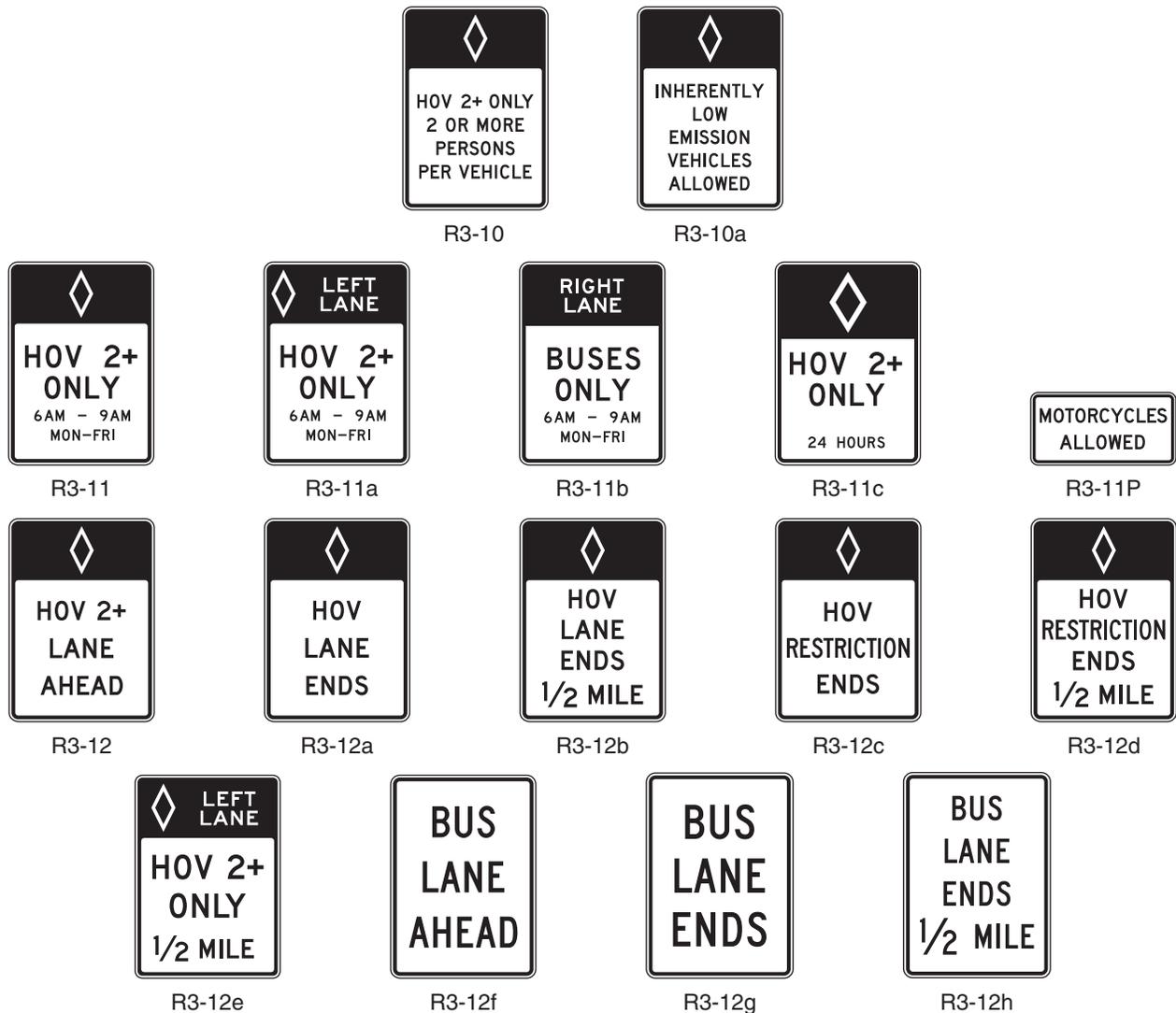
Support:

- 02 Preferential Lane (R3-10 series through R3-15 series) regulatory signs consist of several different general types of regulatory signs as follows (see Figure 2G-1):
 - A. Vehicle Occupancy Definition signs define the vehicle occupancy requirements applicable to an HOV lane (such as “2 OR MORE PERSONS PER VEHICLE”) or types of vehicles not meeting the minimum occupancy requirement (such as motorcycles or ILEVs) that are allowed to use an HOV lane (see Section 2G.04).
 - B. Periods of Operation signs notify road users of the days and hours during which the preferential restrictions are in effect (see Section 2G.05).
 - C. Preferential Lane Advance signs notify road users that a preferential lane restriction begins ahead (see Section 2G.06).
 - D. Preferential Lane Ends signs notify users of the termination point of the preferential lane restrictions (see Section 2G.07).

Table 2G-1. Managed and Preferential Lanes Sign and Plaque Minimum Sizes

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Oversized
			Single Lane	Multi-Lane			
Preferential Lane Vehicle Occupancy Definition (post-mounted)	R3-10,10a	2G.04	30 x 42	30 x 42	36 x 60	78 x 96	78 x 96
Preferential Lane Periods of Operation (post-mounted)	R3-11 series	2G.05	30 x 42	30 x 42	36 x 60	78 x 96	78 x 96
Motorcycles Allowed (plaque)	R3-11P	2G.03	30 x 15	30 x 15	36 x 18	78 x 36	78 x 36
Preferential Lane Ahead or Ends (post-mounted)	R3-12 series	2G.06	30 x 42	30 x 42	36 x 60	48 x 84	48 x 84
Preferential Lane Vehicle Occupancy Definition (overhead)	R3-13,13a	2G.04	66 x 36	66 x 36	84 x 48	144 x 78	144 x 78
HOV Lane Periods of Operation (overhead)	R3-14,14a,14b	2G.05	72 x 60	72 x 60	96 x 72	144 x 108	144 x 108
Preferential Lane Periods of Operation (overhead)	R3-14c	2G.05	90 x 60	90 x 60	108 x 72	156 x 102	168 x 102
HOV Lane Ahead (overhead)	R3-15	2G.06	66 x 36	66 x 36	84 x 48	102 x 60	102 x 60
HOV Lane Begins XX Miles (overhead)	R3-15a	2G.06	78 x 42	78 x 42	102 x 54	132 x 72	132 x 72
HOV Lane Ends (overhead)	R3-15b,15c	2G.07	66 x 36	66 x 36	84 x 48	102 x 60	102 x 60
Preferential Lane Ahead or Ends (overhead)	R3-15d,15e	2G.07	42 x 36	42 x 36	54 x 48	72 x 60	72 x 60
Priced Managed Lane Vehicle Occupancy Definition (post-mounted)	R3-40	2G.17	—	—	54 x 66	54 x 66	66 x 78
Priced Managed Lane Ends (post-mounted)	R3-42,42b	2G.17	—	—	48 x 60	48 x 60	60 x 78
Priced Managed Lane Ends Advance (post-mounted)	R3-42a,42c	2G.17	—	—	48 x 66	48 x 66	60 x 84
Priced Managed Lane Vehicle Occupancy Definition	R3-43	2G.17	—	—	138 x 66	138 x 66	—
Priced Managed Lane Periods of Operation (overhead)	R3-44	2G.17	—	—	90 x 84	90 x 84	—
Priced Managed Lane Periods of Operation (overhead)	R3-44a	2G.17	—	—	132 x 84	132 x 84	—
Priced Managed Lane Ends (overhead)	R3-45	2G.17	—	—	90 x 66	90 x 66	—
Priced Managed Lane Ends (overhead)	R3-45a	2G.17	—	—	114 x 66	114 x 66	—
Priced Managed Lane Toll Rate	R3-48	2G.17	—	—	Varies	Varies	—
Priced Managed Lane Toll Rate	R3-48a	2G.17	—	—	Varies	Varies	—
HOV (plaque)	W16-11P	2G.09	24 x 12	24 x 12	30 x 18	30 x 18	30 x 18
Preferential Lane Entrance Gore	E8-1	2G.10	—	—	48 x 96	48 x 96	—
Preferential Lane Intermediate Entrance Gore	E8-1a	2G.10	—	—	48 x 84	48 x 84	—
Preferential Lane Entrance Direction (overhead)	E8-2	2G.11	—	—	222 x 72	222 x 72	—
Preferential Lane Entrance Direction (post-mounted)	E8-2a	2G.11	—	—	186 x 108	186 x 108	—
Preferential Lane Entrance Advance	E8-3	2G.11	—	—	186 x 96	186 x 96	—
Preferential Lane Direct Exit Gore	E8-4	2G.15	—	—	60 x 78	60 x 78	—
Preferential Lane Intermediate Egress Direction	E8-5	2G.13	—	—	Varies x 90	Varies x 90	—
Preferential Lane Intermediate Egress Advance	E8-6	2G.13	—	—	Varies x 84	Varies x 84	—

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

Figure 2G-1. Preferential Lane Regulatory Signs and Plaques (Sheet 1 of 2)**POST-MOUNTED PREFERENTIAL LANE SIGNS****Notes:**

1. The minimum vehicle occupancy requirement may vary for each facility (such as 2+, 3+, 4+).
2. The occupancy requirement may be added to the first line of the R3-12a, R3-12b, R3-12c, and R3-12d signs.
3. Some of the legends shown on these signs are for example purposes only. The specific legend for a particular application should be based upon local conditions, ordinances, and State statutes.

Standard:

- 03 **Regulatory signs applicable only to a preferential lane shall be distinguished from regulatory signs applicable to general-purpose lanes by the inclusion of the applicable symbol(s) and/or word(s) (see Figure 2G-1).**

Support:

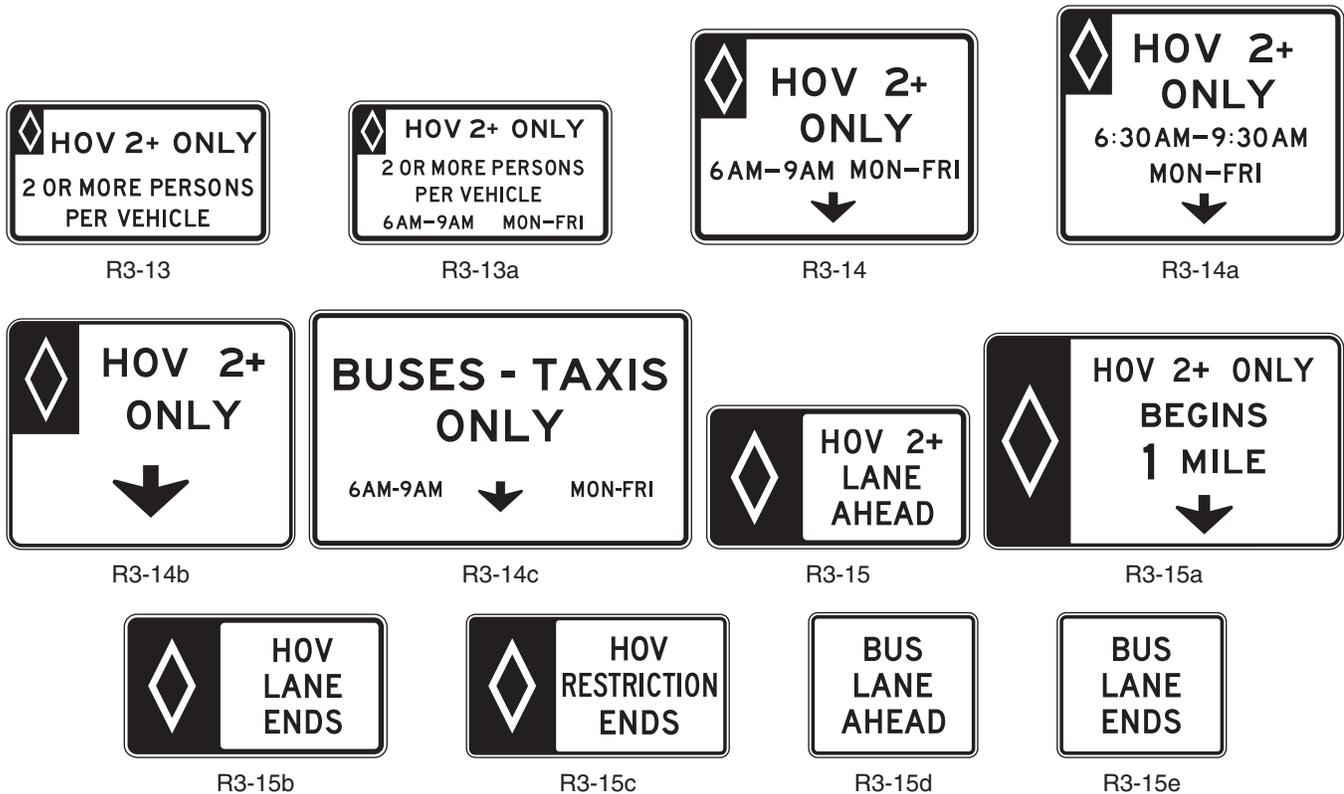
- 04 The symbol and word message displayed on a particular Preferential Lane regulatory sign will vary based on the specific type of allowed traffic and on other related operational constraints that have been established for a particular lane, such as an HOV lane, a bus lane, or a taxi lane.

Option:

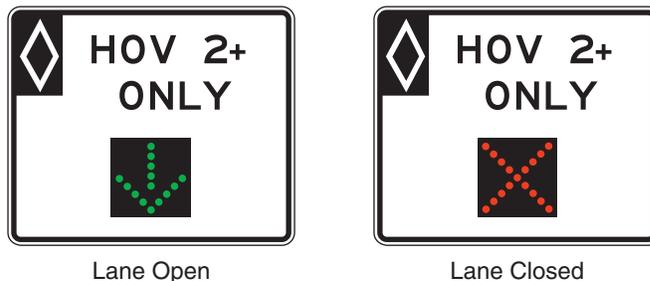
- 05 Changeable message signs may supplement, substitute for, or be incorporated into static Preferential Lane regulatory signs where travel conditions change or where multiple types of operational strategies (such as variable occupancy requirements or vehicle types) are used and varied throughout the day or week, or on a real-time basis, to manage the use of, control of, or access to preferential lanes.

Figure 2G-1. Preferential Lane Regulatory Signs and Plaques (Sheet 2 of 2)

OVERHEAD PREFERENTIAL LANE SIGNS



A lane-use control signal may be incorporated into an overhead preferential lane regulatory sign to indicate the status of a reversible operation as shown in the following example:



Notes:

1. The minimum vehicle occupancy requirement may vary for each facility (such as 2+, 3+, 4+).
2. The occupancy requirement may be added to the first line of the R3-15b and R3-15c signs.
3. Some of the legends shown on these signs are for example purposes only. The specific legend for a particular application should be based upon local conditions, ordinances, and State statutes.
4. Where sufficient median width is available, the R3-13 series and R3-15 series signs may be post-mounted.

Support:

06 Figure 2G-1 illustrates examples of changeable messages incorporated into static Preferential Lane regulatory signs.

Standard:

07 **When changeable message signs (see Chapter 2L) are used as regulatory signs for preferential 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.**

Guidance:

- 08 *When Preferential Lane regulatory signs are used on conventional roads, the decision regarding whether to use a post-mounted or overhead version of a particular type of sign should be based on an engineering study that considers the available space, the existing signs for the adjacent general-purpose traffic lanes, roadway and traffic characteristics, the proximity to existing overhead signs, the ability to install overhead signs, and any other unique local factors.*
- 09 *If overhead regulatory signs applicable only to a preferential lane are located in approximately the same longitudinal position along the highway as overhead signs applicable only to the general-purpose lanes, the signs for the preferential lane should be separated laterally from the signs for the general-purpose lanes to the maximum extent practical to minimize conflicting information, while maintaining their visual relationship to the lanes below necessitated by specific legend or arrows indicating lane assignment.*

Standard:

- 10 **If used, overhead Preferential Lane (R3-13 series, R3-14 series, and R3-15 series) regulatory signs shall be installed on the side of the roadway where the entrance to the preferential lane is located and any appropriate adjustments shall be made to the sign message.**

Option:

- 11 Where a median of sufficient width is available, the R3-13 series and R3-15 series signs may be post-mounted.

Support:

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

Guidance:

- 13 *The edges of Preferential Lane regulatory signs that are post-mounted on a median barrier should not project beyond the outer edges of the barrier, including in areas where lateral clearance is limited.*

Option:

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

Standard:

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

Guidance:

- 16 *On conventional roadways, Preferential Lane regulatory sign spacing should be determined by engineering judgment based on speed, block length, distances from adjacent intersections, and other site-specific considerations.*

Support:

- 17 Sections 2G.04 and 2G.05 contain provisions regarding the placement of Preferential Lane regulatory signs on freeways and expressways.

Standard:

- 18 **The signs illustrated in Figure 2G-1 that incorporate the diamond symbol shall be used exclusively with preferential lanes for high-occupancy vehicles to indicate the particular occupancy requirement and time restrictions applying to that lane. The signs illustrated in Figure 2G-1 that do not have a diamond symbol shall be used with preferential lanes that are not HOV lanes, but are designated for use by other types of vehicles (such as bus and/or taxi use).**

Option:

- 19 Agencies may select from either the HOV abbreviation or the diamond symbol, or use both, to reference the HOV lane designation.

Standard:

- 20 **When the diamond symbol (or HOV abbreviation) is used without text on the post-mounted Preferential Lane (R3-10 series, R3-11 series, and R3-12 series) regulatory signs, it shall be centered on the top line of the sign. When the diamond symbol (or HOV abbreviation) is used with associated text on the post-mounted Preferential Lane (R3-10 series, R3-11 series, and R3-12 series) regulatory signs, it shall appear to the left of the associated text. When the diamond symbol is used on the overhead Preferential Lane (R3-13, R3-13a, R3-14, and R3-14a) regulatory signs, it shall appear in the top left quadrant. The diamond symbol for the R3-15, R3-15a, R3-15b, and R3-15c signs shall appear on the left side of the sign. The diamond symbol shall not be used on the bus, taxi, or bicycle Preferential Lane signs.**

- 21 **Vehicle Occupancy Definition, Periods of Operation, and Preferential Lane Advance regulatory signs for HOV lanes shall display the minimum allowable vehicle occupancy requirement established for each HOV lane, displayed immediately after the word message HOV or the diamond symbol.**

Support:

- 22 The agencies that own and operate HOV lanes have the authority and responsibility to determine how they are operated and the minimum occupancy requirements. Information about federal requirements for certain types of vehicles not meeting the minimum occupancy requirement to be eligible to use HOV lanes that receive Federal-aid program funding and about requirements associated with proposed significant changes to the operation of an existing HOV lane and certain vehicles are contained in the “Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes” (see Section 1A.11).

Standard:

- 23 **The provisions of Sections 2G.03 through 2G.07 regarding regulatory signs for Preferential lanes shall apply to managed lanes operated at all times or at certain times by varying vehicle occupancy requirements (HOV) or by using vehicle type restrictions as a congestion management strategy. Such managed lanes shall use changeable message signs or changeable message elements within static signs to display the appropriate regulatory sign messages only when they are in effect.**

- 24 **When certain types of vehicles (such as trucks) are prohibited from using a managed lane or when a managed lane is restricted to use by only certain types of vehicles during certain operational strategies, regulatory signs or regulatory panels within the appropriate guide signs that include changeable message elements shall be used to display the open/closed status of the managed lane for such vehicle types.**

- 25 **When the vehicle occupancy required for use of an HOV lane is varied as a part of a managed lane operational strategy, regulatory signs that include changeable message elements shall be used to display the required vehicle occupancy in effect.**

Support:

- 26 See Section 2G.17 for regulatory signs for managed lanes that use tolling or pricing as a congestion management strategy, either exclusively or with other management strategies.
- 27 Figures 2G-2 and 2G-3 illustrate the use of regulatory signs for the beginning, along the length, and at the end of contiguous or buffer-separated preferential lanes that provide continuous access with the adjacent general-purpose lanes.

Section 2G.04 Preferential Lane Vehicle Occupancy Definition Regulatory Signs (R3-10 Series and R3-13 Series)

Standard:

- 01 **The R3-10, R3-13, and R3-13a Vehicle Occupancy Definition signs (see Figure 2G-1) shall be used where agencies determine that it is appropriate to provide a sign that defines the minimum occupancy of vehicles that are allowed to use an HOV lane.**

Guidance:

- 02 *The Inherently Low Emission Vehicle (ILEV) (R3-10a) sign (see Figure 2G-1) should be used when it is permissible for a properly labeled and certified ILEV, regardless of the number of occupants, to use an HOV lane. When used, the ILEV signs should be post-mounted in advance of and at intervals along the HOV lane based upon engineering judgment and the placement of other Preferential Lane regulatory signs. The R3-10a sign is only applicable to HOV lanes and should not to be used with other preferential lane applications.*

Support:

- 03 ILEVs are defined by the Environmental Protection Agency (EPA) as vehicles having no fuel vapor (hydrocarbon) emissions and are certified by the EPA as meeting the emissions standards and requirements specified in 40 CFR 88-311-93 and 40 CFR 88.312-93(c).

Guidance:

- 04 *The legend format of the R3-10 and R3-13 signs should have the following sequence:*
- A. *Top Line: “HOV 2+ ONLY” (or 3+ or 4+ if appropriate)*
 - B. *Bottom Lines: “2 OR MORE PERSONS PER VEHICLE” (or 3 or 4 if appropriate)*
- 05 *The legend format of the R3-13a sign should have the following sequence:*
- A. *Top Line: “HOV 2+ ONLY” (or 3+ or 4+ if appropriate)*
 - B. *Middle Lines: “2 OR MORE PERSONS PER VEHICLE” (or 3 or 4 if appropriate)*
 - C. *Bottom Lines: Times and days the occupancy restriction is in effect*

Support:

- 06 Section 2G.17 contains information regarding the legends of Vehicle Occupancy Definition signs for a priced managed lane that has an occupancy requirement for non-toll travel.

Standard:

- 07 **For barrier- or buffer-separated or contiguous preferential lanes where access between the preferential and general-purpose lanes is restricted to designated locations, an overhead Vehicle Occupancy Definition (R3-13 or R3-13a) sign shall be installed at least 1/2 mile in advance of the beginning of or initial entry point to an HOV lane. These signs shall only be displayed in advance of the beginning of or initial entry point to HOV lanes.**

Option:

- 08 For barrier-separated HOV lanes, the sequence of a post-mounted Periods of Operation (R3-11a) sign followed by a post-mounted Vehicle Occupancy Definition (R3-10) sign may be located at intervals of approximately 1/2 mile along the length of the HOV lane, at intermediate entry points, and at designated enforcement areas as defined by the operating agency.

Standard:

- 09 **For buffer-separated or contiguous HOV lanes where access is restricted to designated locations, the sequence of a post-mounted Periods of Operation (R3-11a) sign followed by a post-mounted Vehicle Occupancy Definition (R3-10) sign shall be located at intervals not greater than 1/2 mile along the length of the access-restricted HOV lane, at designated gaps where vehicles are allowed to legally access the HOV lane, and within designated enforcement areas as defined by the operating agency.**

- 10 **For buffer-separated or contiguous HOV lanes where continuous access with the adjacent general-purpose lanes is provided, the sequence of a post-mounted Periods of Operation (R3-11a) sign followed by a post-mounted Vehicle Occupancy Definition (R3-10) sign, and ILEV (R3-10a) signs if appropriate, shall be located at intervals not greater than 1/2 mile along the length of the HOV lane.**

Guidance:

- 11 *The signs within each Preferential Lane regulatory sign sequence should be separated by a minimum distance of 800 feet and a maximum distance of 1,000 feet.*

Standard:

- 12 **For all types of direct access ramps that provide access to or lead to HOV lanes, a post-mounted Vehicle Occupancy Definition (R3-10) sign, and an ILEV (R3-10a) sign if appropriate, shall be used at the beginning or initial entry point for the direct access ramp.**

Section 2G.05 Preferential Lane Periods of Operation Regulatory Signs (R3-11 Series and R3-14 Series)

Guidance:

- 01 *The sizes of post-mounted Periods of Operation (R3-11 series) signs should remain consistent to accommodate any manual addition or removal of a single line of text for each sign.*

Support:

- 02 Consistent sign sizes are beneficial for agencies when ordering sign materials, as well as when making text changes to existing signs if changes occur to operating times or occupancy restrictions in the future. For example, the R3-11c sign has space for one line located below “24 HOURS” if an agency determines that it is appropriate to display additional information (such as “MON – FRI”), yet the R3-11c sign has the same dimensions as the other R3-11 series signs.

Standard:

- 03 **When used, the post-mounted Periods of Operation (R3-11 series) signs shall be located adjacent to the preferential lane, and the overhead Periods of Operation (R3-14 series) signs shall be mounted directly over the lane.**

- 04 **The legend format of the post-mounted Periods of Operation (R3-11 series) signs shall have the following sequence:**

- A. **Top Lines:** Lanes applicable, such as “RIGHT LANE” or “2 RIGHT LANES” or “THIS LANE”
- B. **Middle Lines:** Eligible uses, such as “HOV 2+ ONLY” (or 3+ or 4+ if appropriate) or “BUSES ONLY” or other applicable uses or eligible turning movements
- C. **Bottom Lines:** Applicable times and days, such as “7 AM – 9 AM” or “6:30 AM – 9:30 AM, MON-FRI”

05 **The legend format of the overhead Periods of Operation (R3-14 series) signs shall have the following sequence:**

- A. **Top Line:** Eligible uses, such as “HOV 2+ ONLY” (or 3+ or 4+ if appropriate) or “BUSES ONLY” or other applicable uses or eligible turning movements
- B. **Bottom Lines:** Applicable times and days, with the time and day placed above the down arrow, such as “7 AM – 9 AM” or “6:30 AM – 9:30 AM, MON-FRI” (When the operating periods exceed the available line width, the hours and days of the week shall be stacked as shown for the R3-14a sign in Figure 2G-1.)

06 **For preferential lanes that are in effect on a full-time basis, either the full-time Periods of Operation (R3-11b and R3-14b) signs shall be used, or the legends of the part-time Periods of Operations (R3-11, R3-11a, R3-14, R3-14a) signs shall be modified to display the legend 24 HOURS.**

07 **The full-time Periods of Operation (R3-14b) sign shall not be used where the preferential lane is in effect only on a part-time basis.**

Option:

08 Where additional movements are permitted from a preferential lane on an approach to an intersection, the format and words used in the legend in the middle lines on the post-mounted Periods of Operation (R3-11 series) signs and on the top line of the overhead Periods of Operation (R3-14 series) signs may be modified to accommodate the permitted movements (such as “HOV 2+ AND RIGHT TURNS ONLY”).

09 A MOTORCYCLES ALLOWED (R3-11P) plaque may be used where motorcycles, regardless of the number of occupants, are allowed to use an HOV lane.

Standard:

10 **If used, the MOTORCYCLES ALLOWED plaque shall be mounted below a post-mounted Preferential Lane Periods of Operation (R3-11, R3-11a, or R3-11c) sign.**

11 **For all barrier- or buffer-separated or contiguous preferential lanes where access is restricted to designated locations, an overhead Periods of Operation (R3-14 series) sign shall be used at the beginning or initial entry point, and at any intermediate entry points or gaps in the barrier where vehicles are allowed to legally access the access-restricted preferential lanes. For all barrier-separated and buffer-separated preferential lanes, post-mounted Periods of Operation (R3-11 series) signs shall be used only as a supplement to the overhead signs at the beginning or initial entry point, or at any intermediate entry points or gaps in the barrier or buffer.**

12 **For buffer-separated or contiguous preferential lanes where continuous access with the adjacent general-purpose lanes is provided, including those where a preferential lane is added to the roadway (see Figure 2G-2 for HOV lanes) and those where a general-purpose lane transitions into a preferential lane (see Figure 2G-3 for HOV lanes), an overhead Periods of Operation (R3-14 series) sign shall be used at the beginning or initial entry point of the preferential lane.**

Guidance:

13 *Overhead (R3-14 series) or post-mounted (R3-11 series) Periods of Operation signs should be installed at periodic intervals along the length of a contiguous or buffer-separated preferential lane where continuous access with the adjacent general-purpose lanes is provided.*

Option:

14 Additional overhead (R3-14 series) or post-mounted (R3-11 series) Periods of Operation signs may be provided along the length of any type of preferential lane.

15 On conventional roads, the overhead Periods of Operation (R3-14 series) signs may be installed at the beginning or entry points and/or at intermediate points along preferential lanes in any geometric configuration.

Standard:

16 **For all types of direct access ramps that provide access to or lead to preferential lanes, a post-mounted Periods of Operation (R3-11 series) sign shall be used at the beginning or initial entry point of the direct access ramp.**

Option:

17 For direct access ramps to preferential lanes, an overhead Periods of Operation (R3-14 series) sign may be used at the beginning or initial entry point to supplement the required post-mounted signs.

18 Lane-use control signals (see Chapter 4M) may be used at access points to preferential lanes to indicate that a ramp or access roadway leading to the preferential lane or facility, or one or more specific lanes of the facility, are open or closed (see Figure 2G-14).

Figure 2G-2. Example of Signing for an Added Continuous-Access Contiguous or Buffer-Separated HOV Lane

Notes:

1. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
2. See Chapter 3D for pavement markings
3. Warning signs are not shown
4. Applicable to part-time or full-time HOV restriction
5. This roadway condition indicates the HOV lane will merge with the general purpose lanes upon termination
6. Sets of R3-10 and R3-11a signs should be placed following entrance ramps and at 1/2-mile intervals along the HOV lane

* Where the median width is insufficient, post-mounted designs (R3-10, R3-11, and R3-12 series) may be used

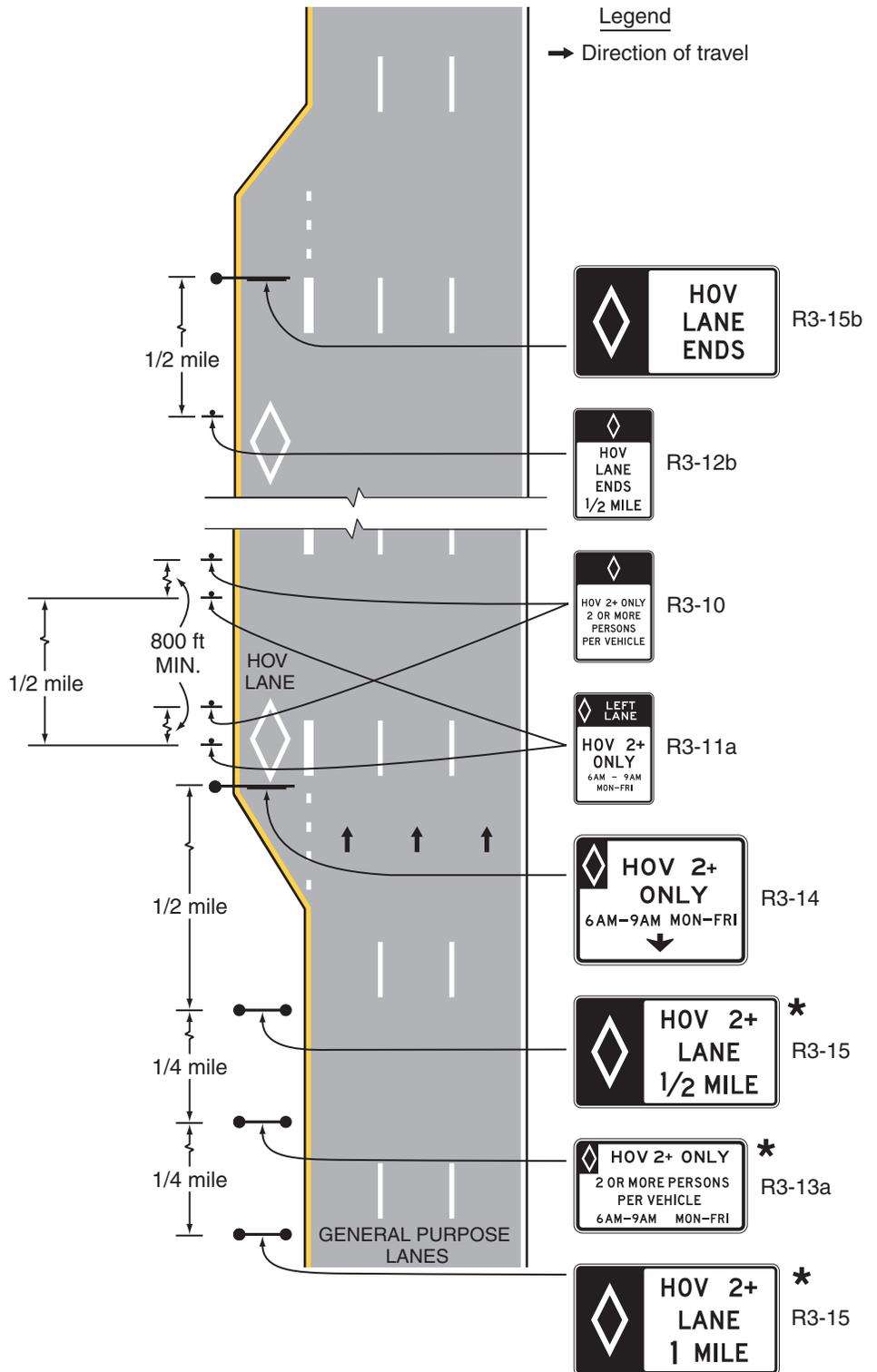
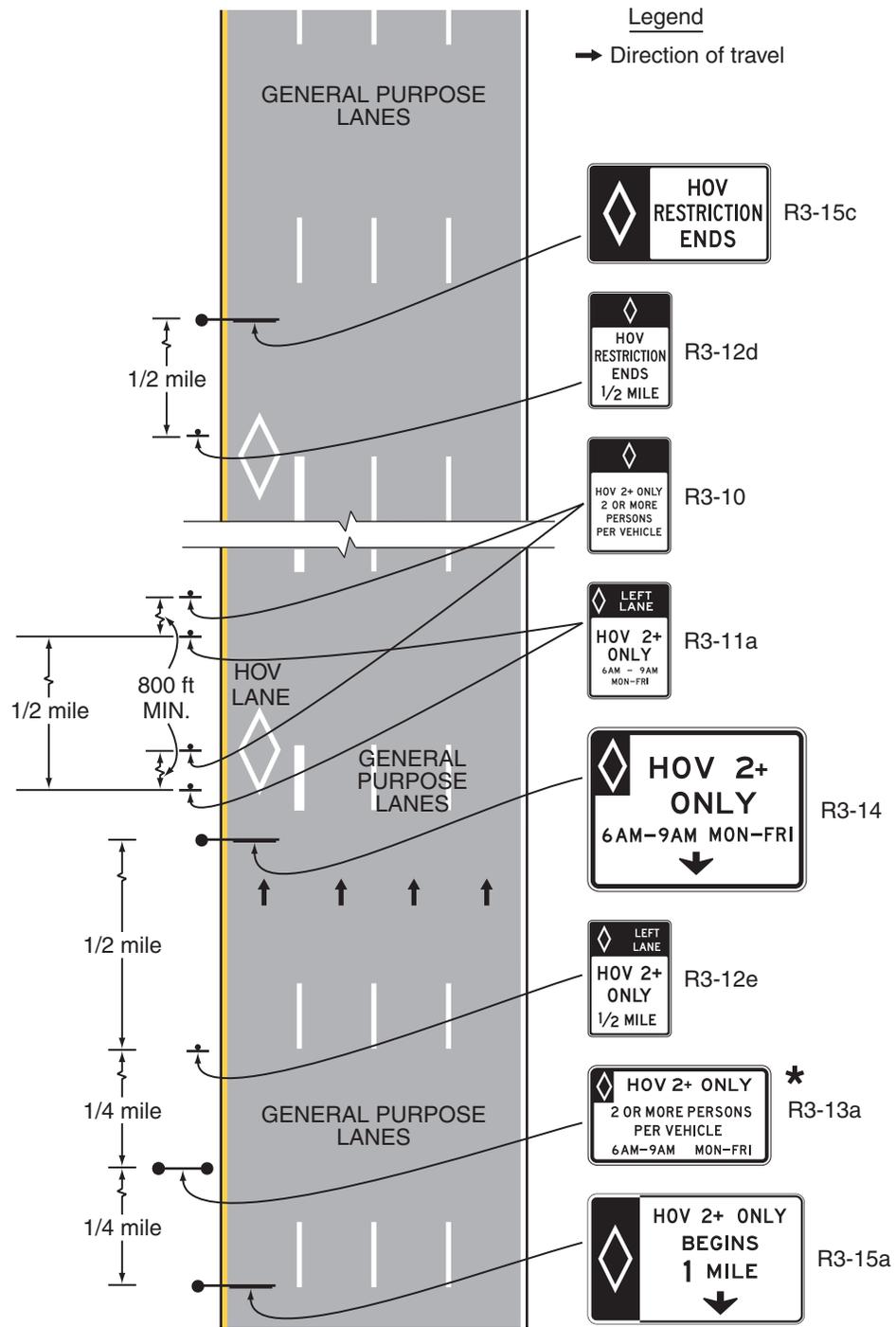


Figure 2G-3. Example of Signing for a General-Purpose Lane that Becomes a Continuous-Access Contiguous or Buffer-Separated HOV Lane

Notes:

1. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
2. See Chapter 3D for pavement markings
3. Applicable to part-time or full-time HOV restriction
4. This roadway condition indicates the HOV lane will become a general purpose lane upon termination of the restriction
5. Sets of R3-10 and R3-11a signs should be placed following entrance ramps and at 1/2-mile intervals along the HOV lane
6. This signing scheme can also be used for an HOV lane on the right-hand side of the roadway

* Where the median width is insufficient, this sign may be mounted overhead



Section 2G.06 Preferential Lane Advance Regulatory Signs (R3-12, R3-12e, R3-12f, R3-15, R3-15a, and R3-15d)

Guidance:

- 01 *The Preferential Lane Advance (R3-12, R3-12f, R3-15, and R3-15d) signs should be used for advance notification of a barrier-separated, buffer-separated, or contiguous preferential lane that is added to the general-purpose lanes (see Figure 2G-12).*
- 02 *The Preferential Lane Advance (R3-12e and R3-15a) signs should be used for advance notification of a general-purpose lane that becomes a preferential lane (see Figure 2G-13).*

Option:

- 03 The legends on the R3-12f and R3-15d signs may be modified to suit the type of preferential lane.

Guidance:

- 04 *On conventional roads, for general-purpose lanes that become preferential lanes, a post-mounted (R3-12e) or overhead (R3-15a) Preferential Lane Advance sign should be installed in advance of the beginning of or initial entry point to the preferential lane at a distance determined by engineering judgment based on speed, traffic characteristics, and other site-specific considerations. The distance selected should provide adequate opportunity for ineligible vehicles to vacate the lane prior to the beginning of the restriction.*
- 05 *On freeways and expressways, for general-purpose lanes that become preferential lanes, an overhead Preferential Lane Advance (R3-15a) sign should be installed at least 1 mile in advance of the beginning of the preferential lane restriction.*

Option:

- 06 Additional post-mounted or overhead Preferential Lane Advance signs may be placed farther in advance of or closer to the beginning or initial entry points to a preferential lane.

Section 2G.07 Preferential Lane Ends Regulatory Signs (R3-12a, R3-12b, R3-12c, R3-12d, R3-12g, R3-12h, R3-15b, R3-15c, and R3-15e)

Standard:

- 01 **A post-mounted Preferential Lane Ends (R3-12b or R3-12h) sign shall be installed at least 1/2 mile in advance of the termination of a preferential lane.**
- 02 **Except as provided in Paragraph 6, a post-mounted Preferential Lane Ends (R3-12a or R3-12g) sign shall be installed at the point where a preferential lane and restriction ends and traffic must merge into the general-purpose lanes.**
- 03 **A post-mounted Preferential Lane Ends (R3-12d) sign shall be installed at least 1/2 mile in advance of the point where a preferential lane restriction ends and the lane becomes a general-purpose lane.**
- 04 **Except as provided in Paragraph 7, a post-mounted Preferential Lane Ends (R3-12c) sign shall be installed at the point where a preferential lane restriction ends and the lane becomes a general-purpose lane.**

Option:

- 05 The legends on the R3-12g and R3-15e signs may be modified to suit the type of preferential lane.
- 06 An overhead Preferential Lane Ends (R3-15b or R3-15e) sign may be installed instead of or in addition to a post-mounted R3-12a or R3-12g sign at the point where a preferential lane and restriction ends and traffic must merge into the general-purpose lanes.
- 07 An overhead Preferential Lane Ends (R3-15c) sign may be installed instead of or in addition to a post-mounted R3-12c sign at the point where the preferential lane restriction ends and the lane becomes a general-purpose lane.

Section 2G.08 Warning Signs on Median Barriers for Preferential Lanes

Option:

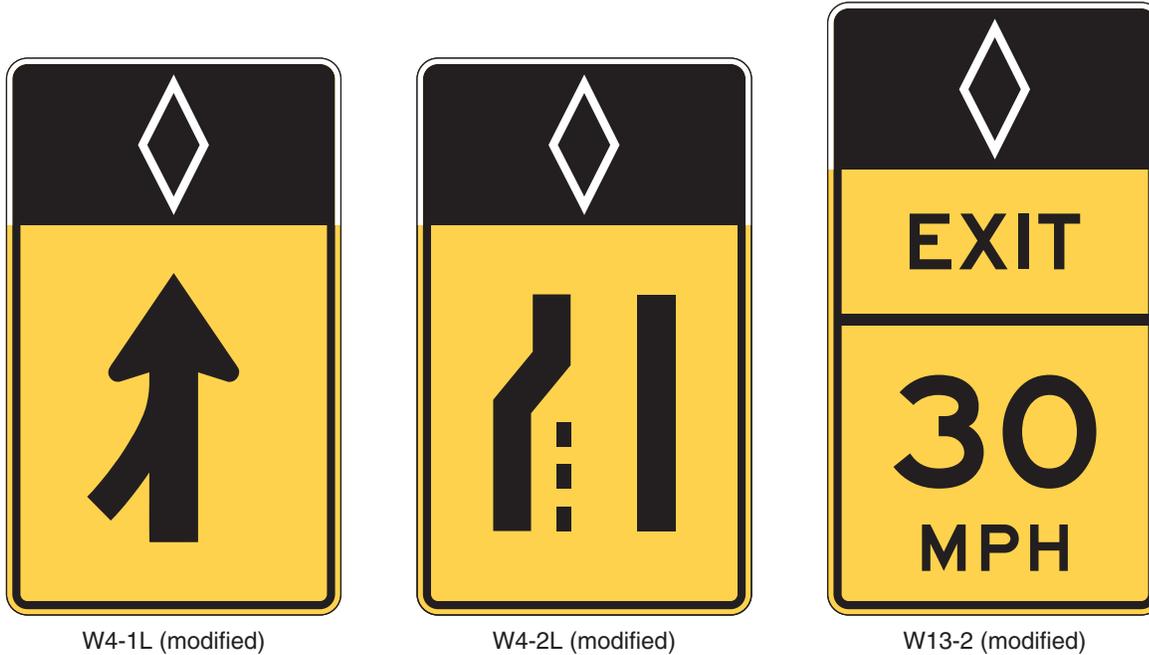
- 01 When a warning sign applicable only to a preferential lane is installed on a median barrier with limited lateral clearance to the adjacent travel lanes or shoulders, the warning sign may have a vertical rectangular shape. For a High Occupancy Vehicle lane, such signs may be used instead of using the HOV Plaque (W16-11P) (see Section 2G.09) with a standard diamond-shaped warning sign.

Standard:

- 02 **When a vertical rectangular-shaped warning sign applicable only to a preferential lane is installed on a median barrier, the top portion of the sign shall be comprised of a white symbol or legend denoting the type of preferential lane (such as the diamond symbol for HOV or the legend BUS LANE) on a black background with a white border, and the bottom portion of the sign shall be comprised of the standard word message or symbol of the standard warning sign as a black legend on a yellow background with a black border (see Figure 2G-4).**

Figure 2G-4. Examples of Warning Signs and Plaques Applicable Only to Preferential Lanes

A - BARRIER-MOUNTED RECTANGULAR WARNING SIGNS



W4-1L (modified)

W4-2L (modified)

W13-2 (modified)

B - WARNING PLAQUE FOR USE ABOVE STANDARD DIAMOND-SHAPED WARNING SIGNS



W16-11P

Note: An HOV lane example (diamond symbol) is illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) shall be displayed in white on the black background of the top portion of these signs.

Guidance:

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

Option:

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

Standard:

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

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

Option:

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

- 02 The diamond symbol may be used instead of the word message HOV on the W16-11P plaque. When appropriate, the words LANE or ONLY may be used on this plaque.

Support:

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

Section 2G.10 Preferential Lane Guide Signs – General

Support:

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

Guidance:

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

Support:

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

Guidance:

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

Standard:

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

Support:

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

Standard:

- 10 **For HOV lanes, the diamond symbol shall appear on each Advance Guide sign, Preferential Lane Entrance Direction sign, and Preferential Lane Entrance Gore sign, as shown in Figures 2G-5 through 2G-7 for the designated entry and exit points for barrier- and buffer-separated geometric configurations and direct access ramps to or from such lanes. The diamond symbol shall not be used with preferential lanes for other types of traffic, such as bus lanes or taxi lanes.**
- 11 **Signing for an HOV lane that is managed by means of varying the occupancy requirement in response to changing conditions shall also comply with these provisions.**
- 12 **The diamond symbol shall be displayed in the legend of each Preferential Lane guide sign at the designated entry and exit points for all types of HOV lanes (including barrier- and buffer-separated, contiguous, and direct access ramps) in order to alert motorists that there is a minimum allowable vehicle occupancy requirement for vehicles to use the HOV lanes. Guide signs shall not display the occupancy requirement for the preferential lane.**
- 13 **A combination of guide and regulatory signs shall be used in advance of and at the initial entry point and all intermediate entry points from general-purpose lanes or facilities to contiguous, barrier-separated, and buffer-separated preferential lanes where access between the preferential and general-purpose lanes is restricted to designated locations. The regulatory signs shall comply with the provisions of Sections 2G.03 through 2G.07.**

14 **Regulatory signs alone shall be used in advance of, at the beginning of, and at periodic intervals along contiguous or buffer-separated preferential lanes that provide continuous access between the adjacent general-purpose lanes and the preferential lane (see Figures 2G-12 and 2G-13). The design and placement of the regulatory signs shall comply with the provisions of Sections 2G.03 through 2G.07.**

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

Option:

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

Standard:

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

Guidance:

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

Option:

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

Standard:

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

Option:

21 Lane-use control signals (see Chapter 4M) may be used at access points to preferential lanes to indicate that a ramp or access roadway leading to or from the preferential lane or facility, or one or more specific lanes of the facility, are open or closed.

22 Changeable message signs may supplement, substitute for, or be incorporated into static guide signs where travel conditions change or where multiple types of operational strategies (such as variable occupancy requirements, vehicle types, or pricing policies) are used and varied throughout the day or week to manage the use of, control of, or access to preferential lanes.

Standard:

23 **When changeable message signs (see Chapter 2L) are used as guide signs for preferential 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.**

24 **Advance Guide signs, Preferential Lane Entrance Direction signs, and Preferential Lane Entrance Gore signs for the initial entry point and intermediate entry points into a preferential lane from the general-purpose lanes on the same designated route shall not identify the entry point as an exit by using the word “EXIT” on the sign or on a plaque.**

Guidance:

25 *Advance Guide signs and Preferential Lane Entrance Direction signs for initial and intermediate entry points into a preferential lane should use the word “ENTRANCE,” such as “HOV LANE ENTRANCE” (see Figures 2G-5 and 2G-6) to convey the fact that vehicles are not leaving the designated route.*

26 *Preferential Lane Entrance Gore signs (see Figure 2G-7) at the initial entry point to a preferential lane should use the word “ENTRANCE.” Preferential Lane Entrance Gore signs at intermediate entry points to a barrier-separated preferential lane where the sign would be located immediately adjacent to and directly viewed by traffic in the preferential lane should not use the word “ENTRANCE.”*

Figure 2G-5. Example of an Overhead Advance Guide Sign for a Preferential Lane Entrance



E8-3

Note: An example of an HOV Lane (diamond symbol) sign is illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) is displayed in white on the black background of the left-hand portion of this sign.

Figure 2G-6. Examples of Overhead or Post-Mounted Preferential Lane Entrance Direction Signs



E8-2
(overhead only)



E8-2a
(post-mounted only)

A changeable message sign may be incorporated into an overhead preferential lane guide sign to indicate the status of a reversible operation as shown in the following example:



Lane Open



Lane Closed

Note: Examples of HOV Lane (diamond symbol) signs are illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) is displayed in white on the black background of the top left-hand portion of these signs.

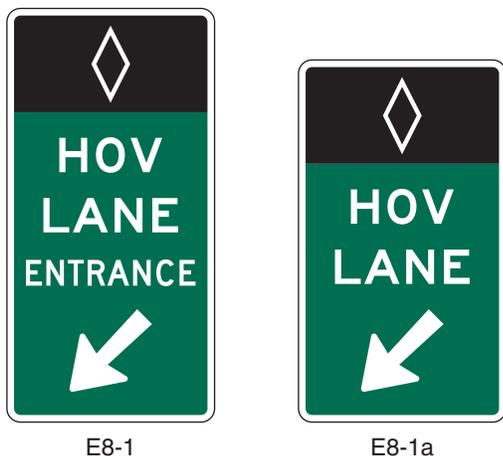
Standard:

- 27 When the entry point is on the left-hand side of the general-purpose lanes, a LEFT (E1-5aP) plaque (see Figure 2E-22) shall be added to the top left edge of the Advance Guide and Preferential Lane Entrance Direction signs. The LEFT plaque shall not be used on a preferential lane regulatory sign.

Section 2G.11 Guide Signs for Initial Entry Points to Preferential Lanes

Standard:

- 01 Except where a buffer-separated or contiguous preferential lane is added or where a general-purpose lane becomes a buffer-separated or contiguous preferential lane, and provides continuous access with the adjacent general-purpose lanes as illustrated in Figures 2G-2 and 2G-3, an Advance Guide sign shall be provided at least 1/2 mile prior to the initial entry point to all types of preferential lanes in any type of geometric configuration. A Preferential Lane Entrance Direction sign shall also be provided at the initial entry point. Advance Guide and Preferential Lane Entrance Direction signs for such entry points shall not include the word “EXIT” (see Section 2G.10).

Figure 2G-7. Entrance Gore Signs for Barrier-Separated Preferential Lanes

Note: Examples of HOV Lane (diamond symbol) signs are illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) is displayed in white on the black background of the top portion of these signs.

Guidance:

- 02 An Advance Guide sign should also be installed and located approximately 1 mile in advance of the initial entry point to a preferential lane that restricts access with the adjacent general-purpose lanes to designated locations.

Option:

- 03 An Advance Guide sign may also be installed and located approximately 2 miles in advance of the initial entry point to a preferential lane that restricts access with the adjacent general-purpose lanes to designated locations.

Standard:

- 04 **For barrier-separated, buffer-separated, or contiguous preferential lanes where entry is restricted to only designated points, the Advance Guide and Preferential Lane Entrance Direction signs shall be mounted overhead.**

Guidance:

- 05 *Preferential Lane Exit Destination guide signs, identifying final destination and downstream exit locations accessible from the preferential lane (see Figures 2G-8, 2G-13, 2G-14, and 2G-16), should be installed in advance of the initial entry points to access-restricted preferential lanes (such as barrier- and buffer-separated). These signs should be located based on the priority of the message, the available space, the existing signs on adjacent general-purpose traffic lanes, roadway and traffic characteristics, the proximity to existing overhead signs, the ability to install overhead signs, and other unique local factors.*

Standard:

- 06 **Advance destination guide signs for preferential lanes shall include an upper section displaying a black legend that includes the type of preferential lane and the word “EXITS,” such as “HOV EXITS,” on a white background. For preferential lanes that incorporate a vehicle occupancy requirement, the white diamond symbol on a black background shall be displayed at the left edge of this upper section (see Figure 2G-8).**

Support:

- 07 Figure 2G-8 shows an example of signs for the initial entry point to a preferential lane.

Section 2G.12 Guide Signs for Intermediate Entry Points to Preferential Lanes

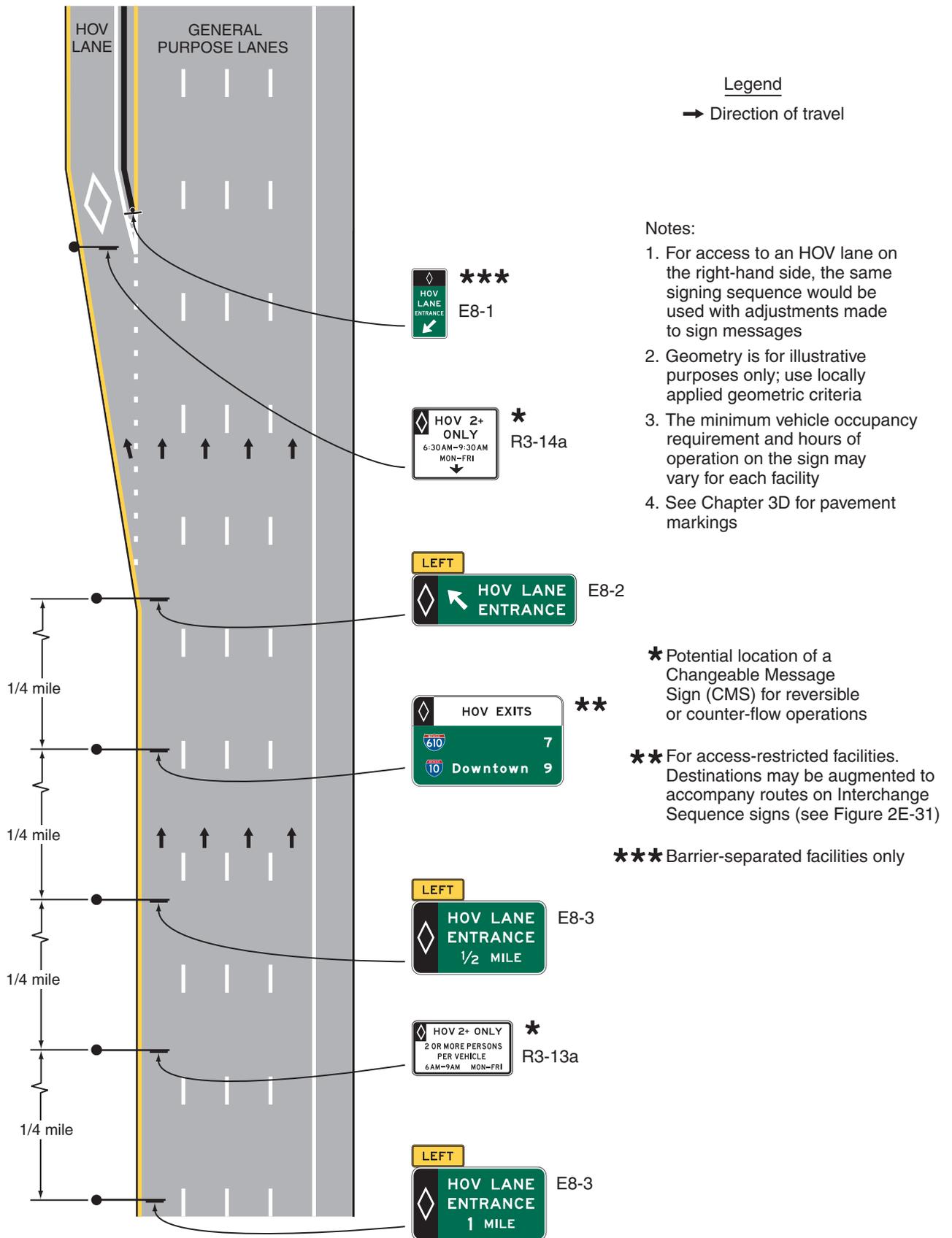
Standard:

- 01 **For barrier-separated, buffer-separated, and contiguous preferential lanes where entry is restricted only to designated points, an overhead Preferential Lane Entrance Direction sign shall be provided at intermediate entry points to the preferential lane from the general-purpose lanes.**

Guidance:

- 02 *For barrier- and buffer-separated preferential lanes where intermediate entry from the general-purpose lanes is provided via a separate lane or ramp (see Figure 2G-9), at least one Advance Guide sign should be provided in addition to the Preferential Lane Entrance Direction sign.*
- 03 *For access-restricted preferential lanes where intermediate entrance and egress are at the same designated access location, the Preferential Lane Entrance Direction sign should be located between 1/2 and 1/4 of the length of the designated entry area, as measured from the downstream end of the entry area (see Figure 2G-10).*

Figure 2G-8. Example of Signing for an Entrance to Access-Restricted HOV Lanes



Standard:

- 04 **The Advance Guide signs, if used for intermediate entry points to a preferential lane from the general-purpose lanes, shall be overhead.****Option:**

Option:

- 05 Advance Guide signs may be provided at approximately 1/2 mile, 1 mile, and 2 miles in advance of intermediate entry points from the general-purpose lanes to a preferential lane.

Standard:

- 06 **Advance Guide and Preferential Lane Entrance Direction signs for intermediate entry points shall not include the word “EXIT” (see Section 2G.10).**

Guidance:

- 07 *Exit Destination guide signs, identifying the final destination and downstream exit locations accessible from the preferential lane, should be installed in advance of intermediate entry points from the general-purpose lanes to access-restricted preferential lanes.*

Support:

- 08 Section 2G.11 contains information on the design and placement of Preferential Lane Exit Destination guide signs.
- 09 Figures 2G-9 and 2G-10 show examples of signs for various geometric configurations of intermediate entry to a barrier- or buffer-separated preferential lane where access is restricted to designated locations.

Section 2G.13 Guide Signs for Egress from Preferential Lanes to General-Purpose Lanes**Standard:**

- 01 **For barrier-separated, buffer-separated, and contiguous preferential lanes where egress is restricted only to designated points, post-mounted Advance Guide and post-mounted Intermediate Egress Direction signs (see Figure 2G-11) shall be installed in the median or on median barriers that separate two directions of traffic prior to and at the intermediate exit points from the preferential lanes to the general-purpose lanes (see Figure 2G-9).**

- 02 **The legends of these signs shall refer to the next exit or exits from the general-purpose lanes by displaying the appropriate destination information, exit number(s), or both. The Intermediate Egress Direction signs for egress from the preferential lanes to the general-purpose lanes shall not refer to the egress as an exit.**

Support:

- 03 Section 2G.10 contains information on the design of post-mounted guide signs applicable to a preferential lane when installed on a median barrier. Figures 2G-9 and 2G-12 show examples of signs for various geometric configurations of intermediate egress from a barrier- or buffer-separated preferential lane where access is restricted to designated locations.

Guidance:

- 04 *Where two or more adjacent preferential lanes are present in a single direction, consideration should be given to the use of overhead guide signs to display the information related to egress from the preferential lanes.*
- 05 *For barrier-separated and buffer-separated preferential lanes where egress from a preferential lane to the general-purpose lanes is restricted only to designated points via a separate lane or ramp, the Advance Guide and Intermediate Egress Direction signs for the egress should be mounted overhead and a Pull-Through sign should be mounted with the Intermediate Egress Direction sign (see Figure 2G-12).*

Standard:

- 06 **For preferential lanes that incorporate a vehicle occupancy requirement, the design of the overhead Advance Guide and Egress Direction signs for intermediate egress from the preferential lanes to the general-purpose lanes shall display a white diamond symbol on a black background at the left-hand edge of the signs.**

- 07 **The design of Pull-Through signs when used in conjunction with an Egress Direction sign at an intermediate egress from the preferential lanes to the general-purpose lanes shall be distinguished from those applicable to general-purpose lanes by inclusion of an upper section with the applicable black legend on a white background, such as HOV LANE. For preferential lanes that incorporate a vehicle occupancy requirement, the white diamond symbol on a black background shall be displayed at the left-hand edge of this upper section.**

Figure 2G-9. Example of Signing for an Intermediate Entry to a Barrier- or Buffer-Separated HOV Lane

Notes:

1. For access to an HOV lane on the right-hand side, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
4. See Chapter 3D for pavement markings
5. Warning signs are not shown

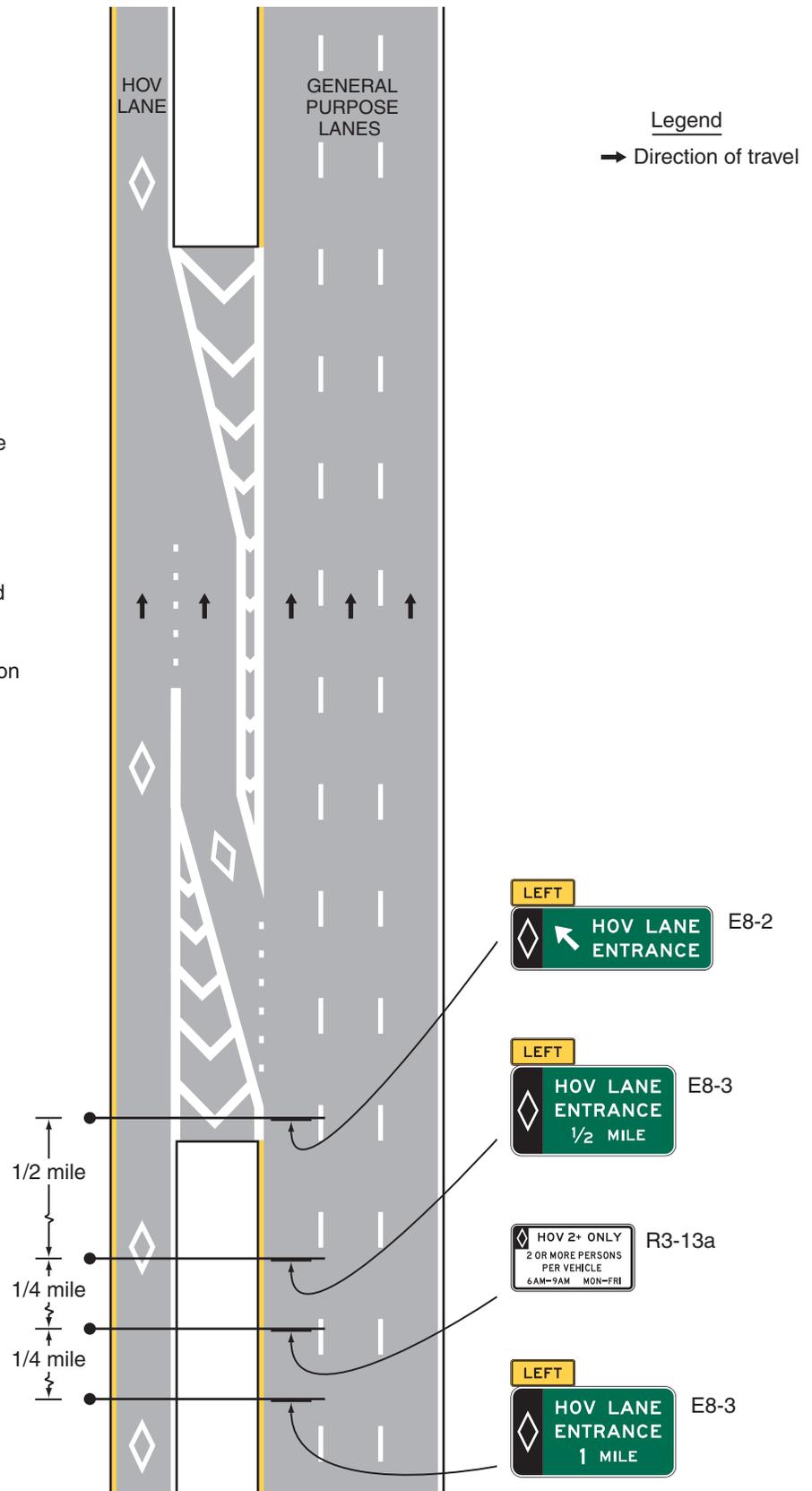


Figure 2G-10. Example of Signing for the Intermediate Entry to, Egress from, and End of Access-Restricted HOV Lanes

Notes:

1. Geometry is for illustrative purposes only; use locally applied geometric criteria
2. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
3. See Chapter 3D for pavement markings
4. Warning signs are not shown

* Barrier-separated facilities only

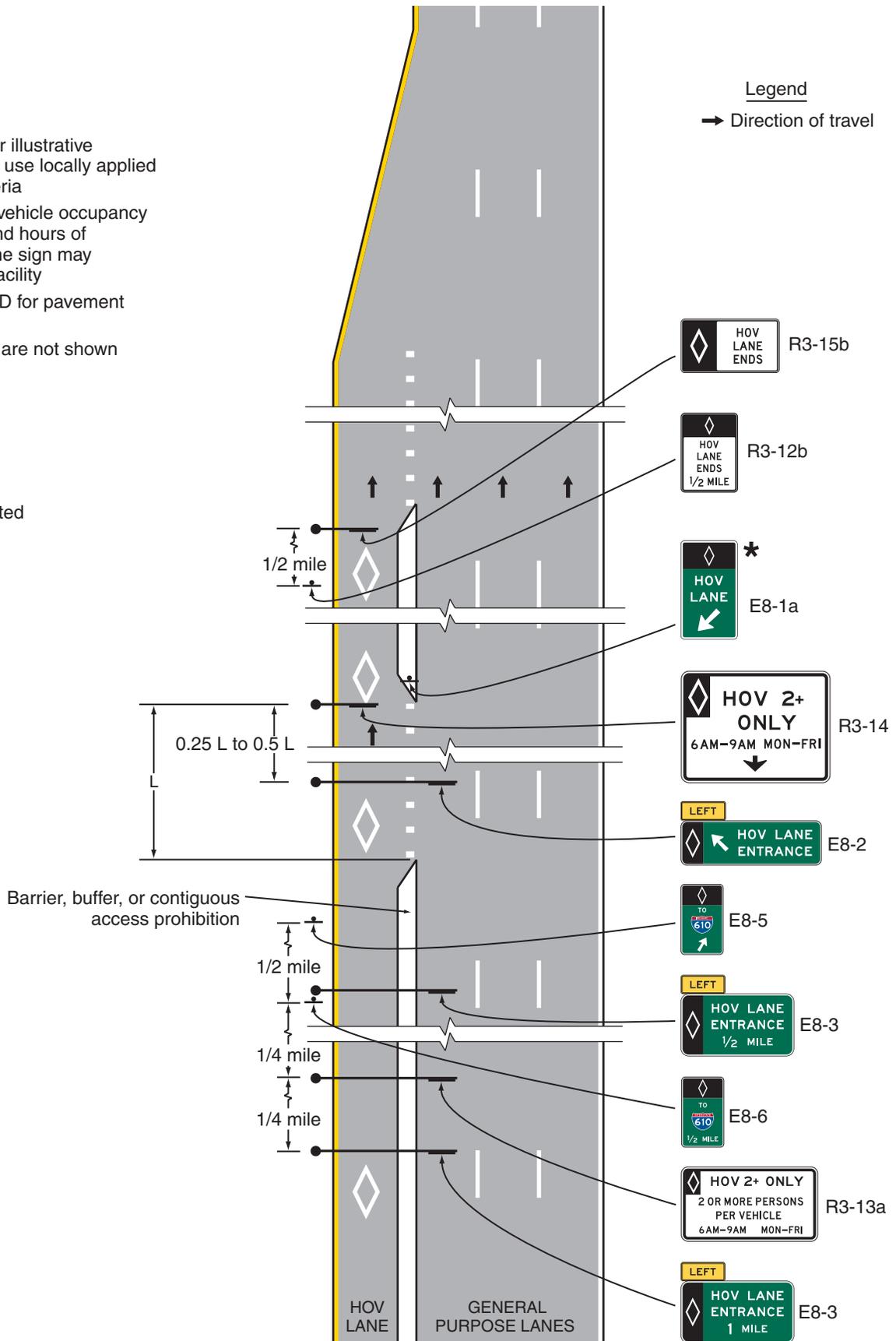


Figure 2G-11. Examples of Barrier-Mounted Guide Signs for an Intermediate Egress from Preferential Lanes



Note: Examples of HOV Lane (diamond symbol) signs are illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) is displayed in white on the black background of the top portion of these signs.

Section 2G.14 Guide Signs for Direct Entrances to Preferential Lanes from Another Highway

Standard:

- 01 For direct access ramps to preferential lanes from a transit facility (such as a park - ride lot or a transit station or terminal) that is accessible from surface streets, advance guide signs shall be provided along the adjoining surface streets to direct traffic into and through the transit facility to the preferential lane (see Figure 2G-13).

Support:

- 02 Figure 2G-14 provides examples of recommended uses and layouts of signs for HOV lanes for direct access ramps, park - ride lots, and access from surface streets.

Section 2G.15 Guide Signs for Direct Exits from Preferential Lanes to Another Highway

Standard:

- 01 For contiguous preferential lanes on the left-hand side of the roadway, Advance Guide signs, Exit Direction signs, and Exit Gore signs (see Figure 2G-14) specifically applicable to the preferential lanes shall be used for exits to direct access ramps, such as HOV lane ramps (see Figure 2G-15) or ramps to park - ride facilities.
- 02 The design of Advance Guide, Exit Direction, and Pull-Through signs for direct exits from preferential lanes shall be distinguished from those applicable to general-purpose lanes by inclusion of an upper section with the applicable black legend on a white background, such as HOV LANE (for Pull-Through signs) or HOV EXIT (for Advance Guide and Exit Direction signs). For preferential lanes that incorporate a vehicle occupancy requirement, the white diamond symbol on a black background shall be displayed at the left-hand edge of this upper section (see Figures 2G-15 and 2G-16).

Guidance:

- 03 Advance Guide and Exit Direction signs for exits to direct access ramps from a preferential lane should be mounted overhead. A Pull-Through sign should be used with the Exit Direction sign at exits to direct access ramps.

Standard:

- 04 Post-mounted guide signs in a vertical rectangular shape installed on a median barrier shall not be used for the Advance Guide and Exit Direction signs for exits to direct access ramps.
- 05 Because direct access ramps for preferential lanes at interchanges connecting two freeways are typically left-hand side exits and typically have design speeds similar to the preferential lane, overhead Advance Guide signs and overhead Exit Direction signs shall be provided in advance of and at the entry point to each freeway-to-freeway preferential lane ramp (see Figure 2G-16).

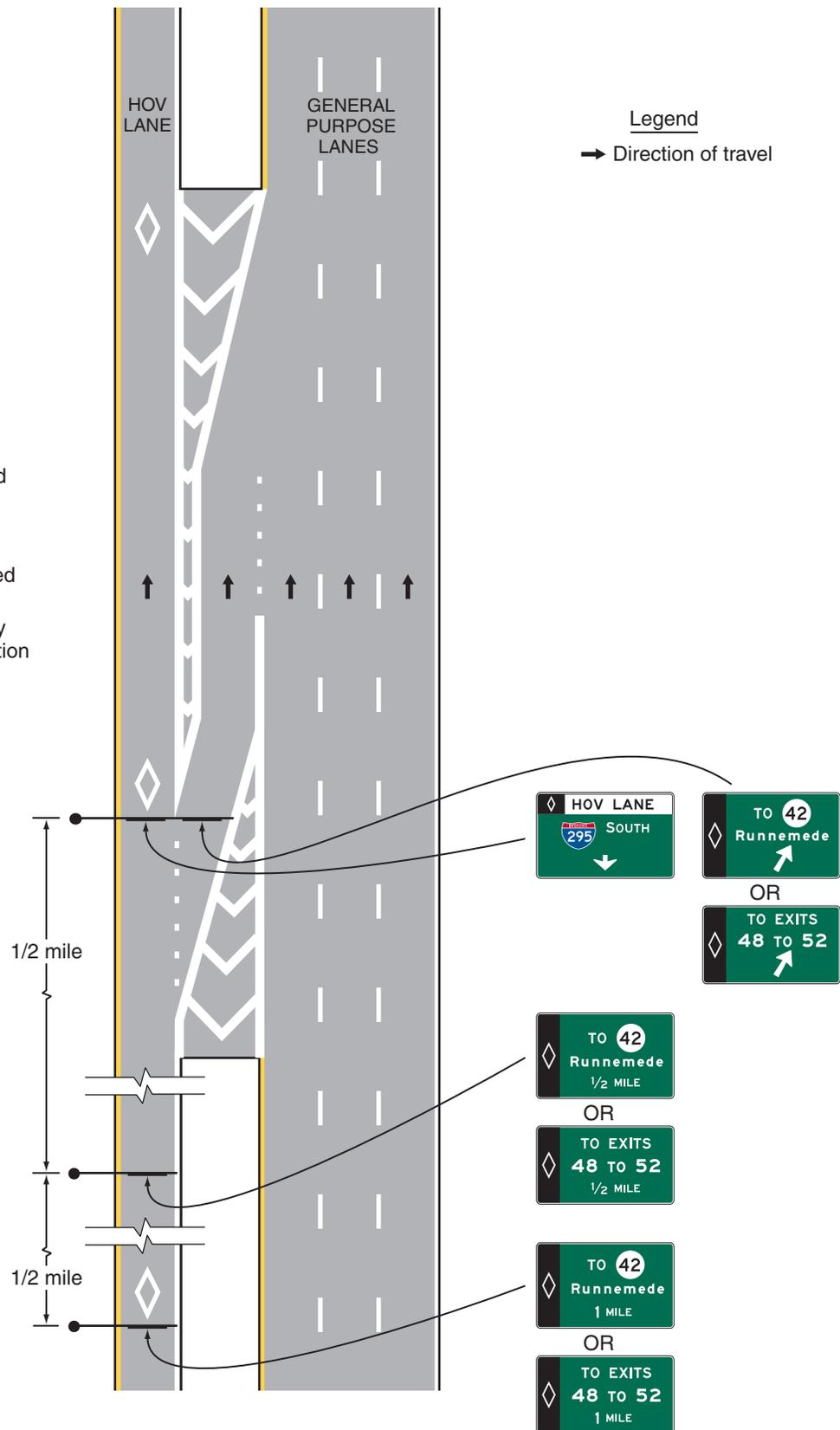
Guidance:

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

Support:

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

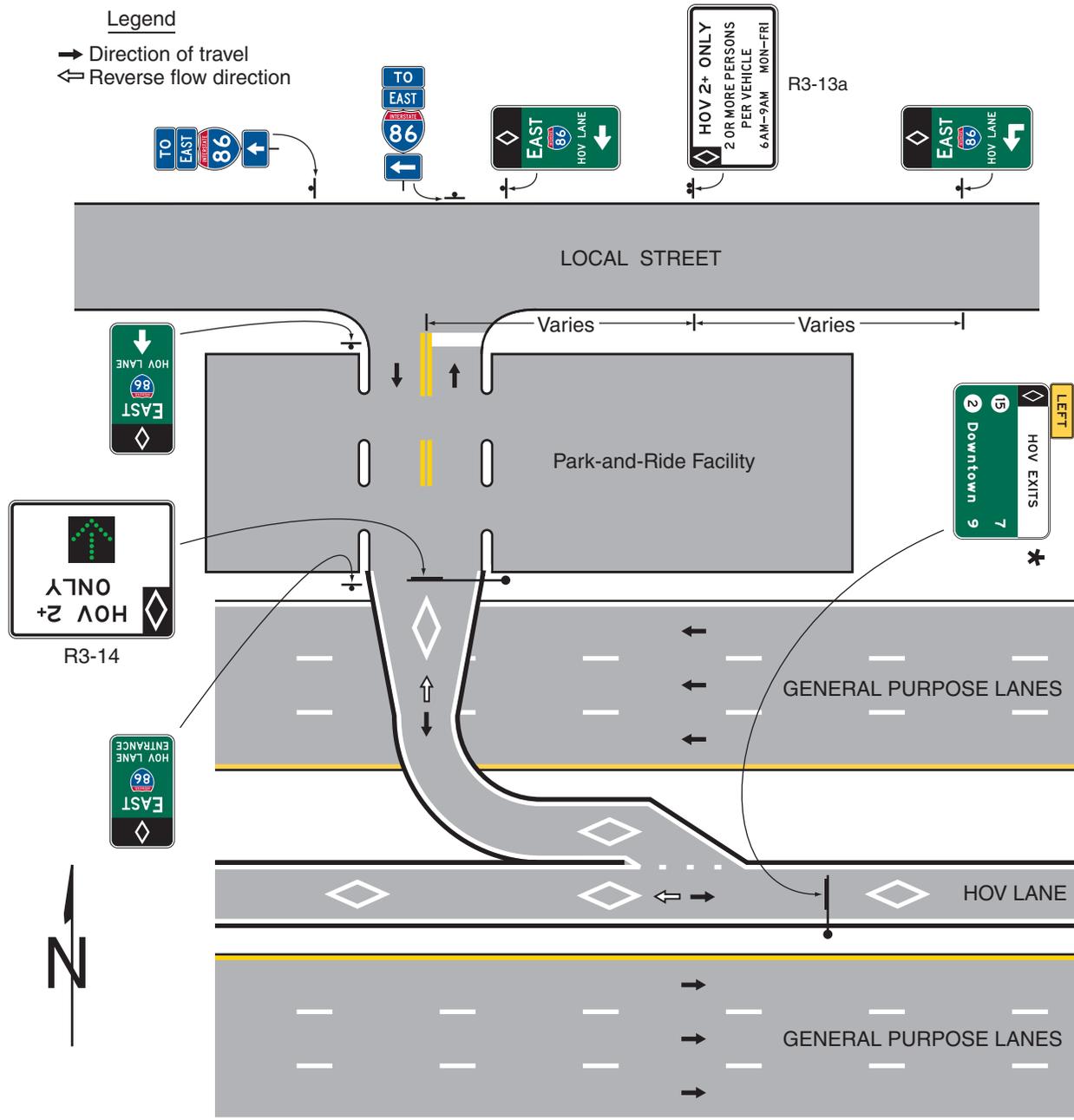
Figure 2G-12. Examples of Signs for an Intermediate Egress from a Barrier- or Buffer-Separated HOV Lane



Notes:

1. For an exit on the left-hand side from an HOV lane, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
4. See Sections Chapter 3D for pavement markings
5. Warning signs are not shown

Figure 2G-13. Example of Signing for a Direct Entrance Ramp to an HOV Lane from a Park-and-Ride Facility and a Local Street



Notes:

1. The minimum vehicle occupancy requirement on the sign may vary for each facility
2. See Chapter 3D for pavement markings
3. Warning signs are not shown
4. Sign locations are approximate
5. Additional signs may be required to direct drivers from the surrounding streets into the park-and-ride lot and the HOV lane
6. Additional signs are required on the adjoining surface streets to inform non-HOVs that they should not enter the HOV facility
7. This figure illustrates a reversible HOV lane with a direct access ramp
8. The guide signs directing local street traffic to the HOV lane should include the word ENTRANCE when the direct access ramp does not traverse a park-and-ride facility

* For access-restricted facilities; destinations may be augmented to accompany routes on Interchange Sequence signs (see Figure 2E-31)

Figure 2G-14. Exit Gore Sign for a Direct Exit from a Preferential Lane

E8-4

Note: An example of an HOV Lane (diamond symbol) sign is illustrated. For other types of preferential lanes, the appropriate symbol or word message (see Section 2G.03) is displayed in white on the black background of the top portion of this sign.

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

Support:

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

Standard:

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

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

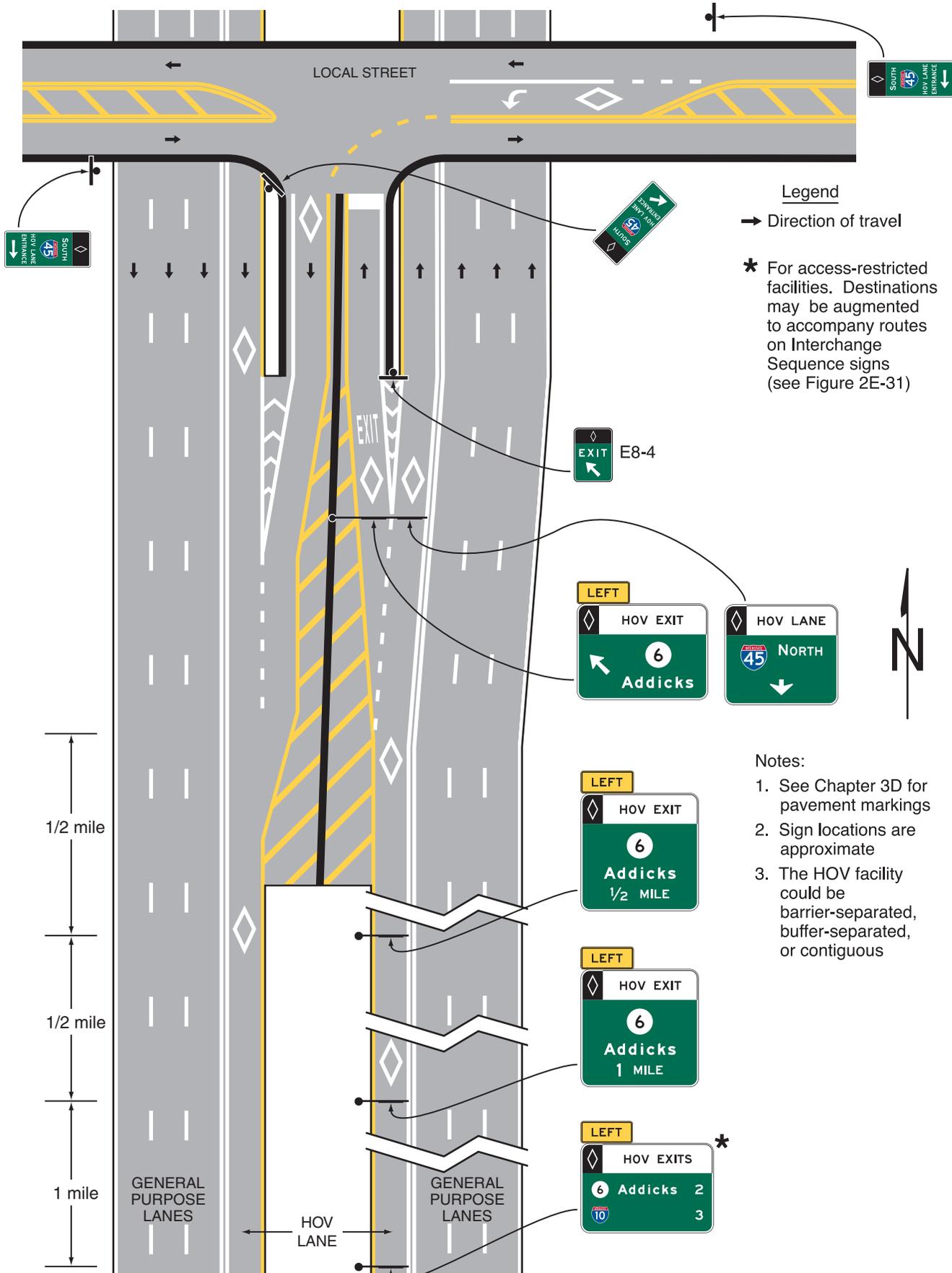
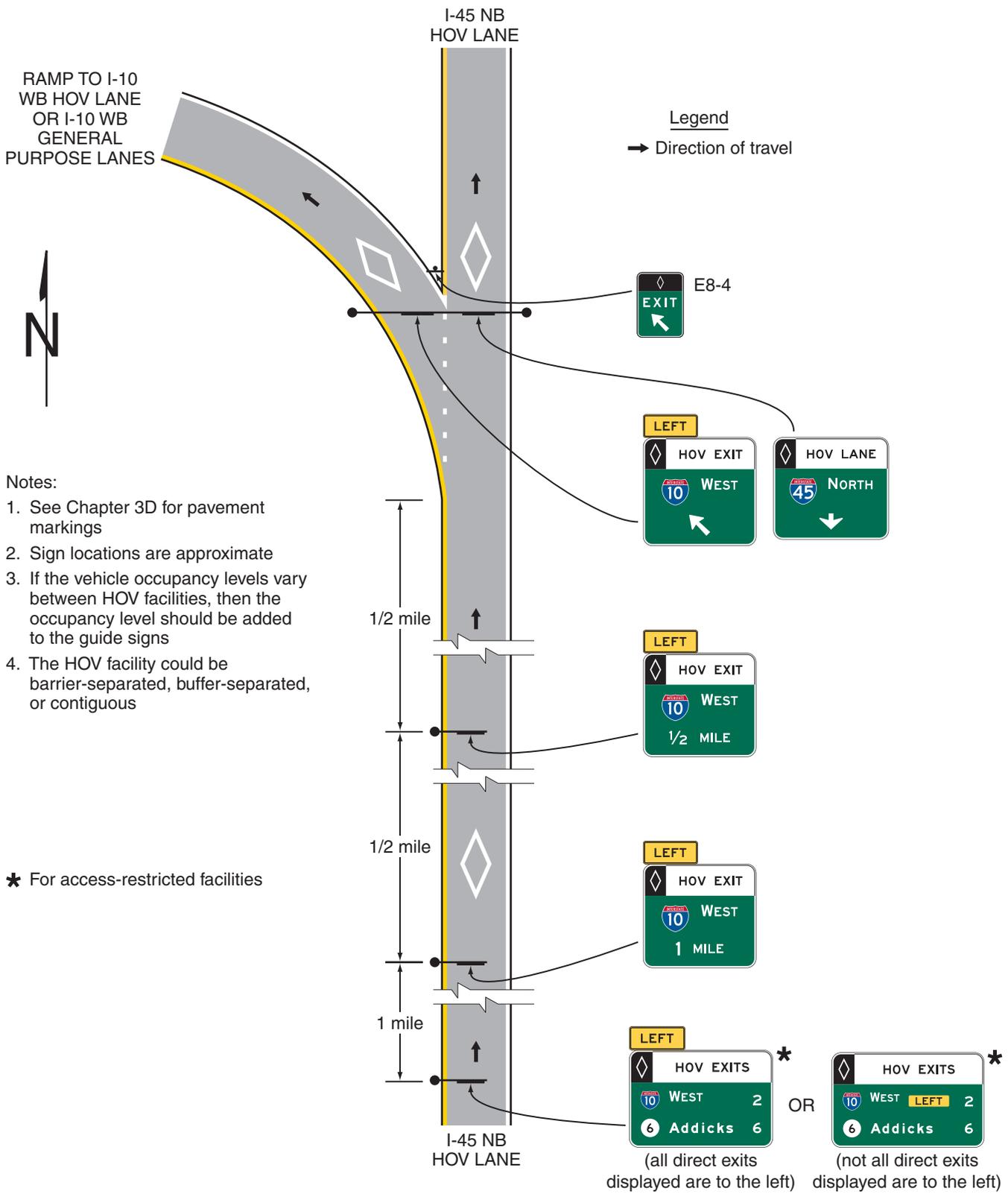


Figure 2G-16. Examples of Guide Signs for a Direct Access Ramp between HOV Lanes on Separate Freeways



- 07 The diamond symbol shall be reserved exclusively for preferential lanes whose operational strategy is occupancy-based only (see Sections 2G.03 through 2G.14) and shall not be used to designate a managed lane in which other operational strategies, such as tolling and pricing, are employed to allow general-purpose traffic to use the lane.

Section 2G.17 Regulatory Signs for Priced Managed Lanes

Standard:

- 01 Except as otherwise provided in this Section, the provisions of Sections 2G.03 through 2G.07 regarding regulatory signs for Preferential lanes shall apply to priced managed lanes operated at all times or at certain times with a toll payment requirement of some or all vehicles to use the lane(s). Such managed lanes shall use changeable message signs or changeable message elements within static signs to display the appropriate regulatory sign messages only when they are in effect.
- 02 Regulatory signs for preferential lanes shall be appropriately modified for adaptation to a priced managed lane, where applicable, as shown in Figure 2G-17.
- 03 Regulatory signs shall be used to indicate the toll charged. If the toll varies, regulatory signs that include changeable message elements, such as the R3-48 and R3-48a signs that are shown in Figure 2G-17, shall be used to display the actual toll amount in effect at any given time.
- 04 When only vehicles with a registered ETC account are allowed to use a managed lane where some or all vehicles are charged a toll, regulatory signs to indicate such a restriction shall be provided and shall incorporate the pictograph adopted by the toll facility's ETC payment system and the word ONLY (see Section 2G.18 for the incorporation of such regulatory legends into the guide signs for the entrances to such facilities). The display of the ETC system pictograph shall comply with the provisions of Sections 2F.03 and 2F.04 as shown in Figures 2G-17 and 2G-18.
- 05 When HOV traffic is allowed to use a priced managed lane without paying a toll and registration in a local program is not required to receive the toll exemption, the Vehicle Occupancy Definition (R3-10 or R3-13) signs (see Section 2G.04) shall be modified to delete the diamond symbol to create priced managed lane Vehicle Occupancy Definition (R3-40 and R3-43) signs to indicate the minimum occupancy related to the management strategy (see Figure 2G-17).
- 06 A priced managed lane Periods of Operation (R3-44 or R3-44a) sign (see Figure 2G-17) shall be installed at the beginning or initial entry point, and at any intermediate entry points where vehicles are allowed to legally enter an access-restricted priced managed lane.
- 07 When the vehicle occupancy required for non-toll use of a managed lane is varied as a part of a priced managed lane operational strategy, regulatory signs that include changeable message elements shall be used to display the required vehicle occupancy in effect for non-toll travel.

Option:

- 08 Where registration in a local program or ETC account is required for HOV traffic to travel in a priced managed lane without being charged a toll or by being charged a discounted toll, such information may be displayed on a separate sign within the sequence of the required regulatory and guide signs.

Standard:

- 09 R3-42 Series and R3-45 Series signs (see Figure 2G-17) shall be installed in accordance with the provisions of Section 2G.07 to indicate the termination of a priced managed lane or restriction. The R3-42, R3-42a, and R3-45 signs shall be used only where the managed lane and restriction end and traffic must merge into the general-purpose lanes. The R3-42b, R3-42c, and R3-45a signs shall be used only where the managed lane restriction ends and the lane becomes a general-purpose lane.

Section 2G.18 Guide Signs for Priced Managed Lanes

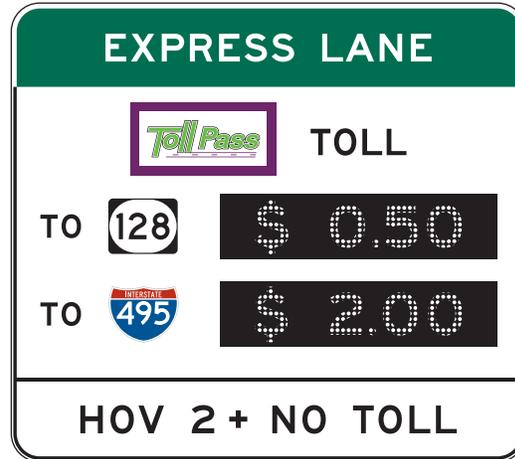
Standard:

- 01 Except as otherwise provided in this Section, guide signs for barrier-separated, buffer-separated, and contiguous managed lanes shall follow the specific provisions for Preferential Lane guide signs contained in Sections 2G.10 through 2G.15. Except as otherwise provided in this Section, guide signs for highways on which all lanes are managed shall follow the general provisions for freeway and expressway guide signs as contained in Chapter 2E as a whole. Guide signs for highways on which all lanes are managed and tolling or pricing is used as a management strategy shall follow the applicable provisions for toll road guide signs as contained in Chapter 2F, in addition to the general provisions of Chapter 2E.
- 02 If fixed or variable tolls are used as an operational strategy for a managed lane, the guide signs shall comply with the provisions of Sections 2F.03, 2F.04, and 2F.17 regarding the use, size, and placement of ETC-account pictographs.

Figure 2G-17. Regulatory Signs for Managed Lanes



R3-48



R3-48a



R3-40



R3-42



R3-42a



R3-42b



R3-42c



R3-43



R3-44



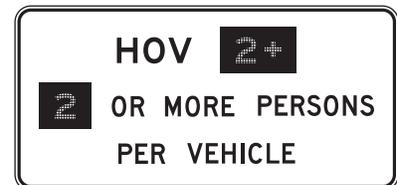
R3-44a



R3-45



R3-45a



Example of regulatory sign with changeable message elements

Notes:

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

Support:

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

Guidance:

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

Option:

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

Standard:

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

Support:

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

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

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



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



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

Standard:

10 The use and locations of guide signs for intermediate egress locations and direct exits from a priced managed lane (see Figures 2G-24 through 2G-27) shall comply with the provisions of Sections 2G.13 and 2G.15. The signs shall be suitably modified to display header messages of white legend on a green background that relate the guide sign legends to the managed lane(s) as appropriate in accordance with the following:

- A. Post-mounted or overhead-mounted Advance Guide signs for intermediate egress to the general-purpose lanes shall include the legend LOCAL EXITS in a header panel within the guide signs, destination information or the exit number(s) for the next exit(s) accessible from the general-purpose lanes, and the appropriate distance information to the location of the egress (see Figures 2G-24 and 2G-25).
- B. Post-mounted or overhead-mounted Intermediate Egress Direction signs shall include the legend LOCAL EXITS in a header panel within the signs, the destination information or the exit number(s) of the next exit(s) accessible from the general-purpose lanes, and a diagonally upward-pointing directional arrow (see Figures 2G-24 and 2G-25).
- C. For direct exits to another roadway, the legend EXPRESS EXIT shall be used on the Advance Guide and Exit Direction signs (see Figure 2G-26).
- D. For pull-through signs, the legend EXPRESS LANE(S) shall be used, either as a header panel within the pull-through sign or as the principal legend of the sign without a header panel (see Figures 2G-25, 2G-26, and 2G-27).

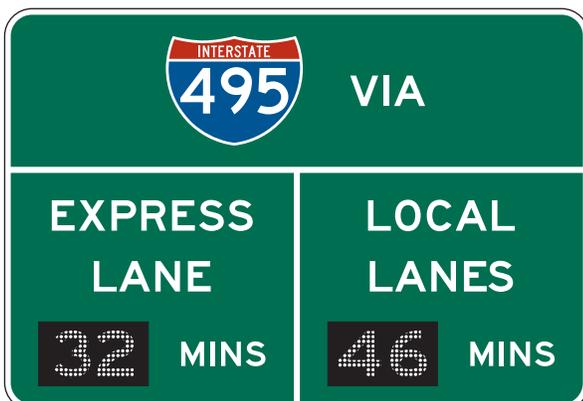
Support:

- 11 Section 2G.13 contains information on the use of overhead-mounted guide signs for intermediate egress to the general-purpose lanes.
- 12 Figures 2G-28 and 2G-29 show examples of guide signing for direct entrances to a priced managed lane from a crossroad or surface street.

Figure 2G-19. Example of an Exit Destinations Sign for a Managed Lane



Figure 2G-20. Example of a Comparative Travel Time Information Sign for Preferential or Managed Lanes



Notes:

- 1. The ETC pictograph shown is an example only. The pictograph for the toll facility's adopted ETC system shall be used.
- 2. CMS elements shall be used for the numerals displayed for the estimated travel times.

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

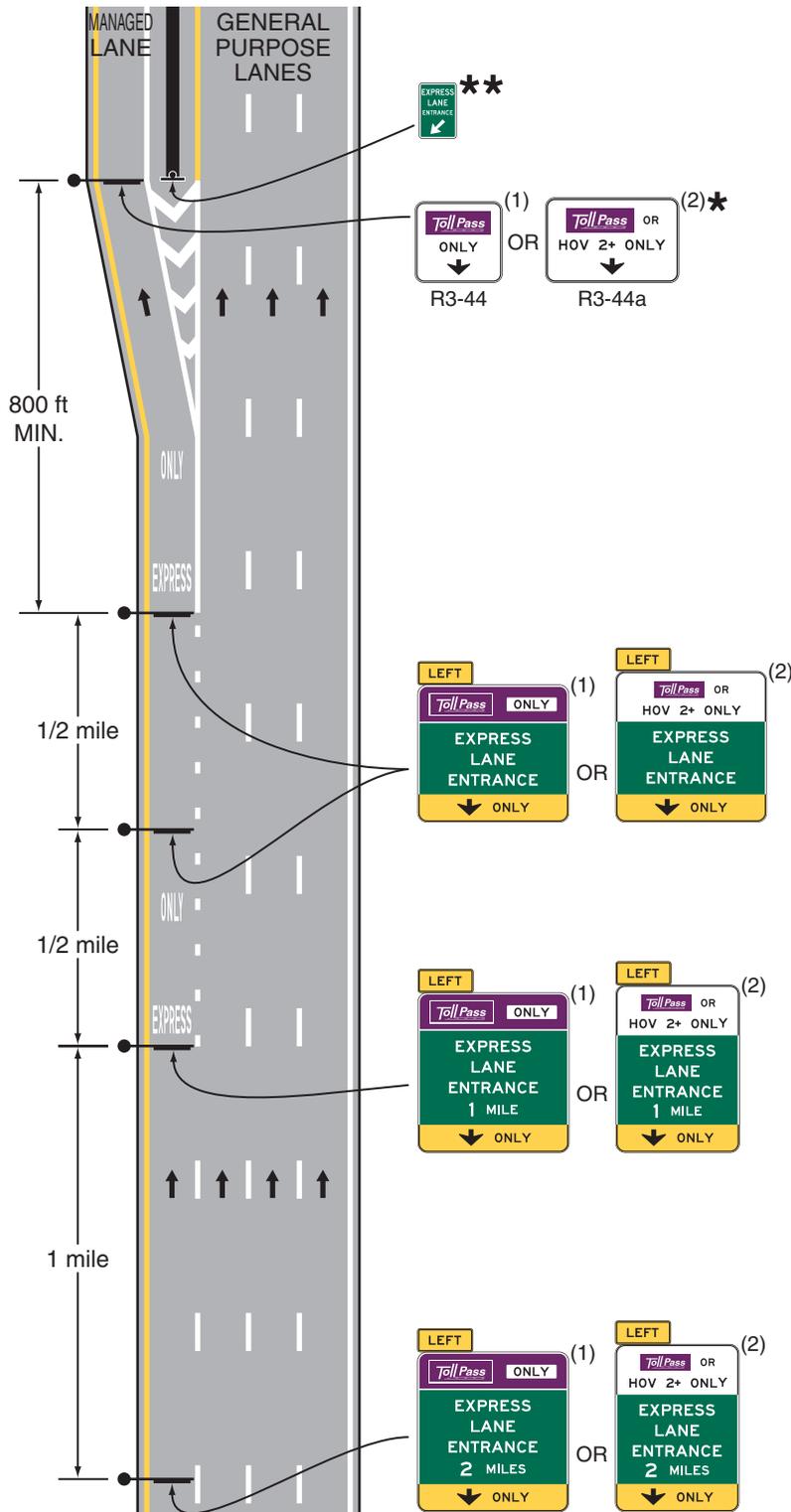
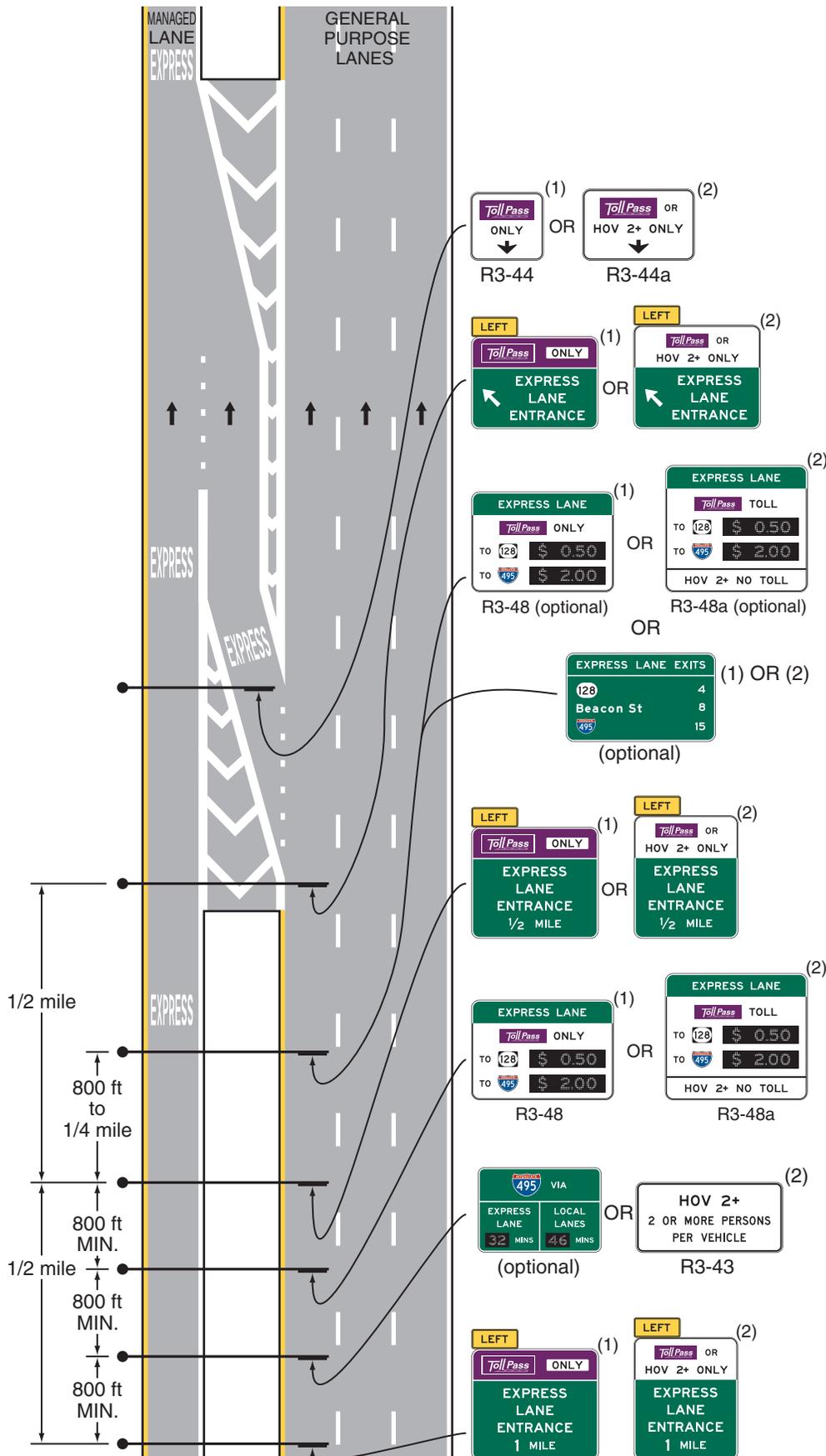


Figure 2G-23. Example of Signing for an Intermediate Entry to a Barrier- or Buffer-Separated Priced Managed Lane



Legend
 → Direction of travel

Notes:

1. For access to a managed lane on the right-hand side, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
4. See Chapter 3D for pavement markings
5. Warning signs are not shown

- (1) All vehicles must have a registered ETC account. Toll discounts or exemptions through a registration program might be applicable for certain vehicles.
- (2) All vehicles except HOV must have a registered ETC account. If registration is required for non-toll travel by HOV traffic, case (1) signing shall be used.

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

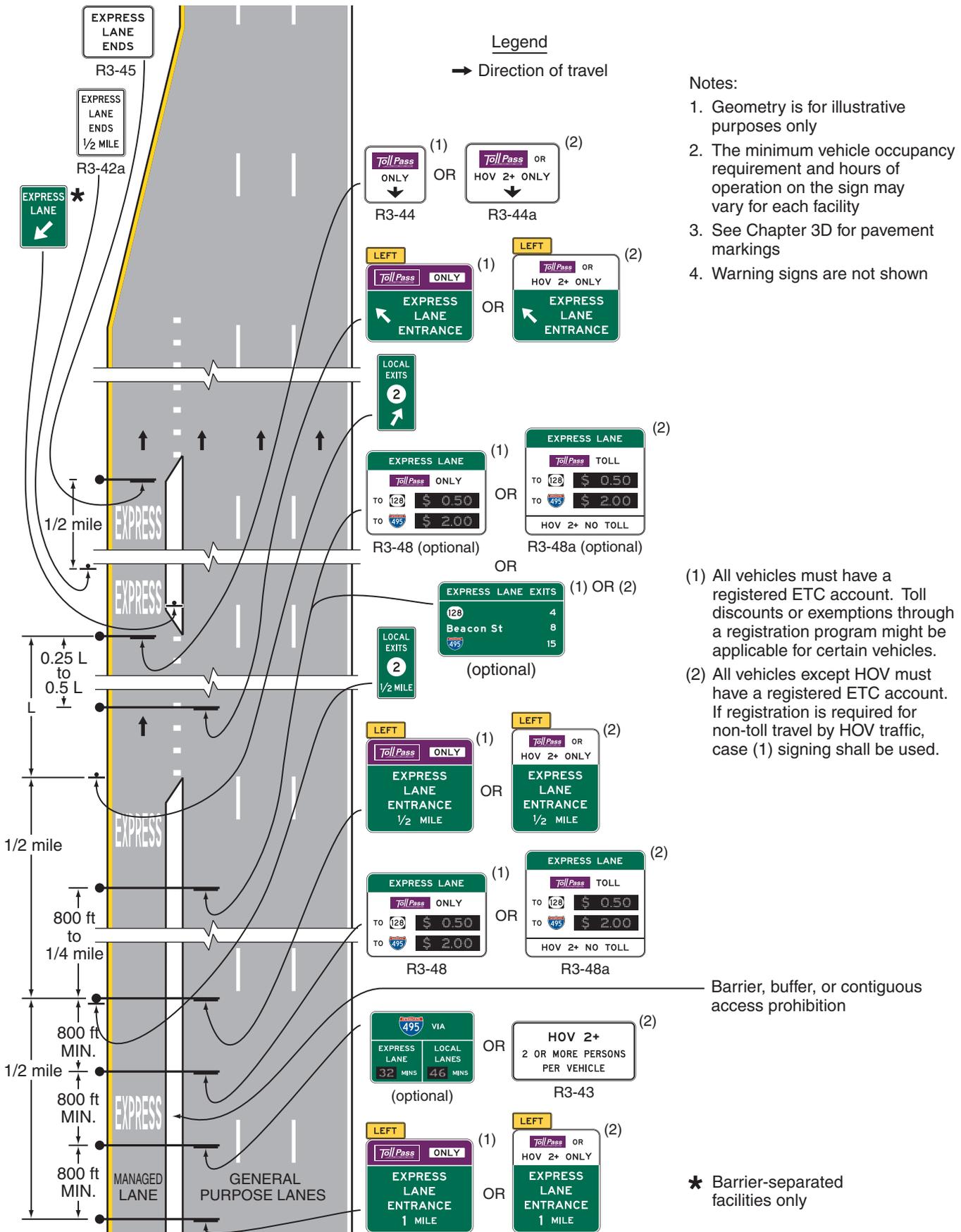
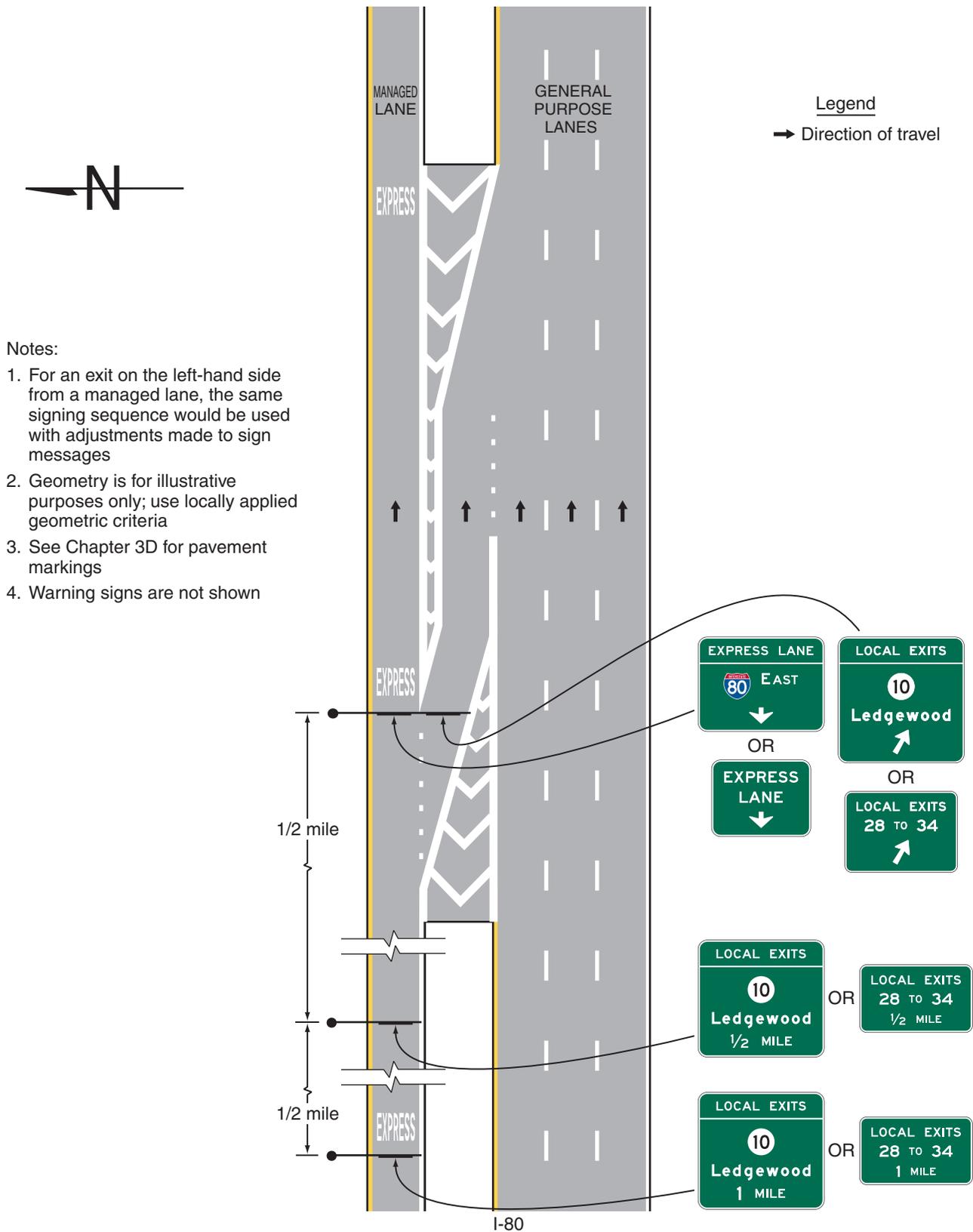


Figure 2G-25. Examples of Guide Signs for an Intermediate Egress from a Barrier- or Buffer-Separated Managed Lane



Notes:

1. For an exit on the left-hand side from a managed lane, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. See Chapter 3D for pavement markings
4. Warning signs are not shown

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

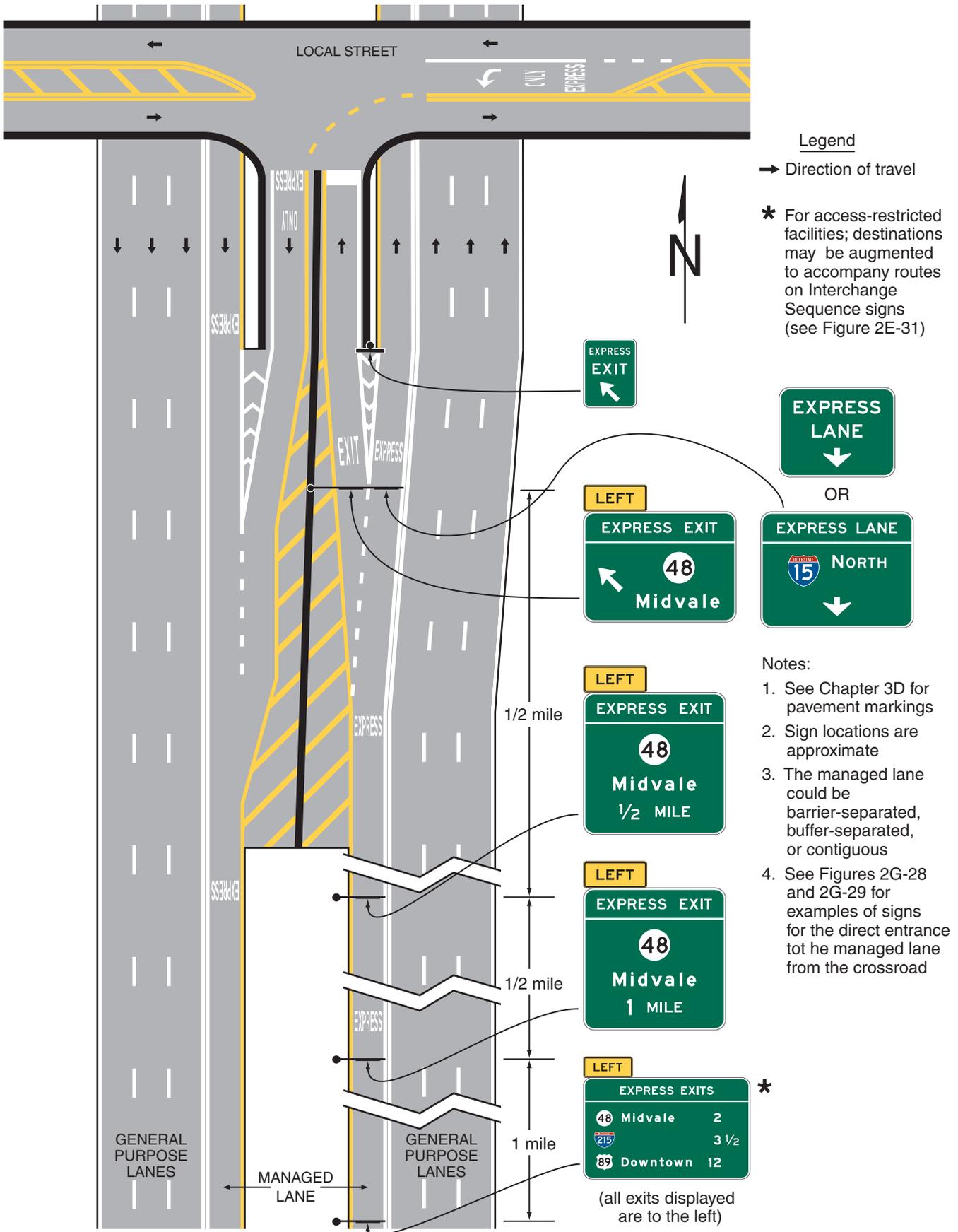


Figure 2G-27. Examples of Guide Signs for a Direct Access Ramp between Managed Lanes on Separate Freeways

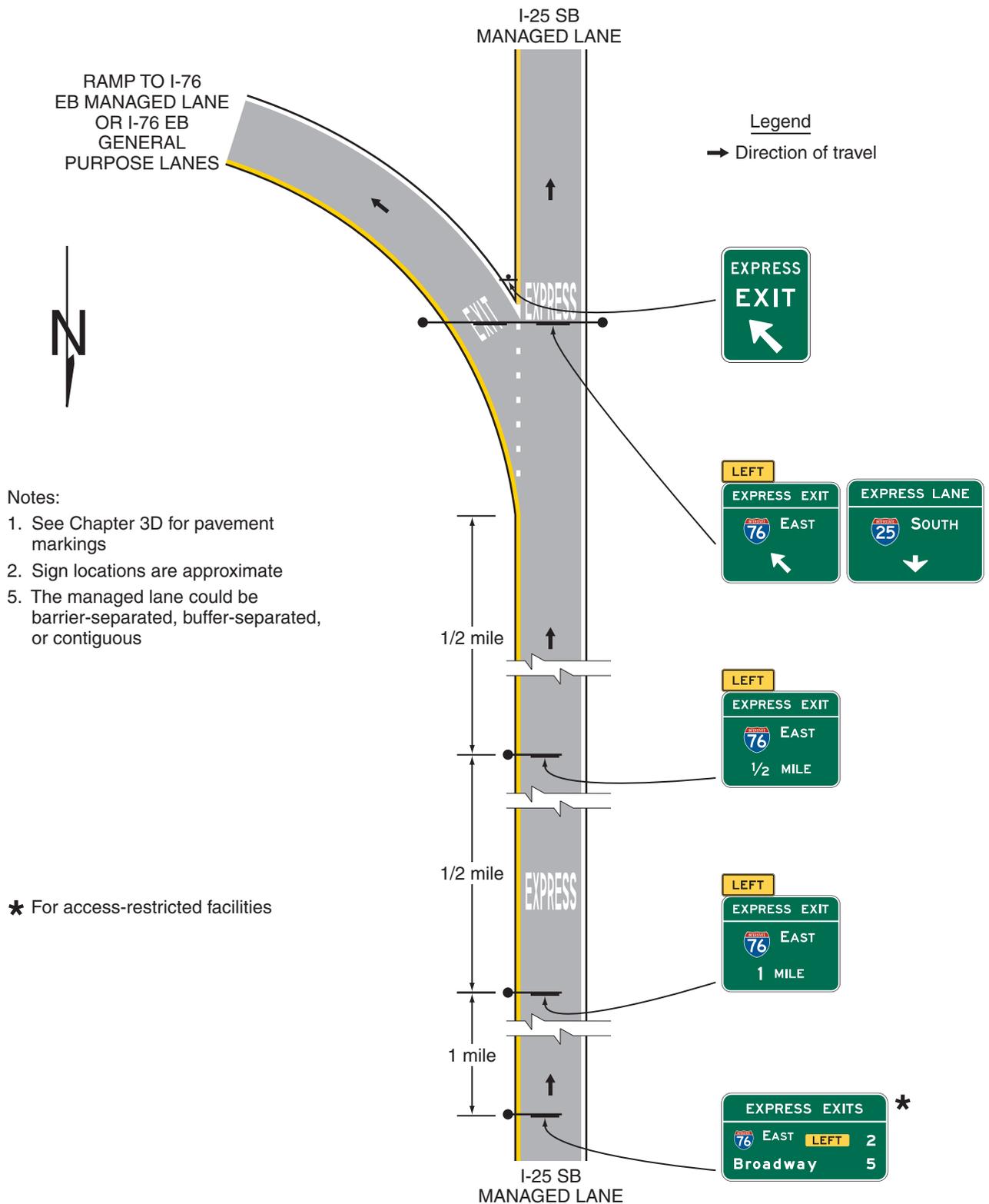


Figure 2G-28. Examples of Guide Signs for a Direct Entrance Ramp to a Priced Managed Lane and Trailblazing to a Nearby Entrance to the General-Purpose Lanes

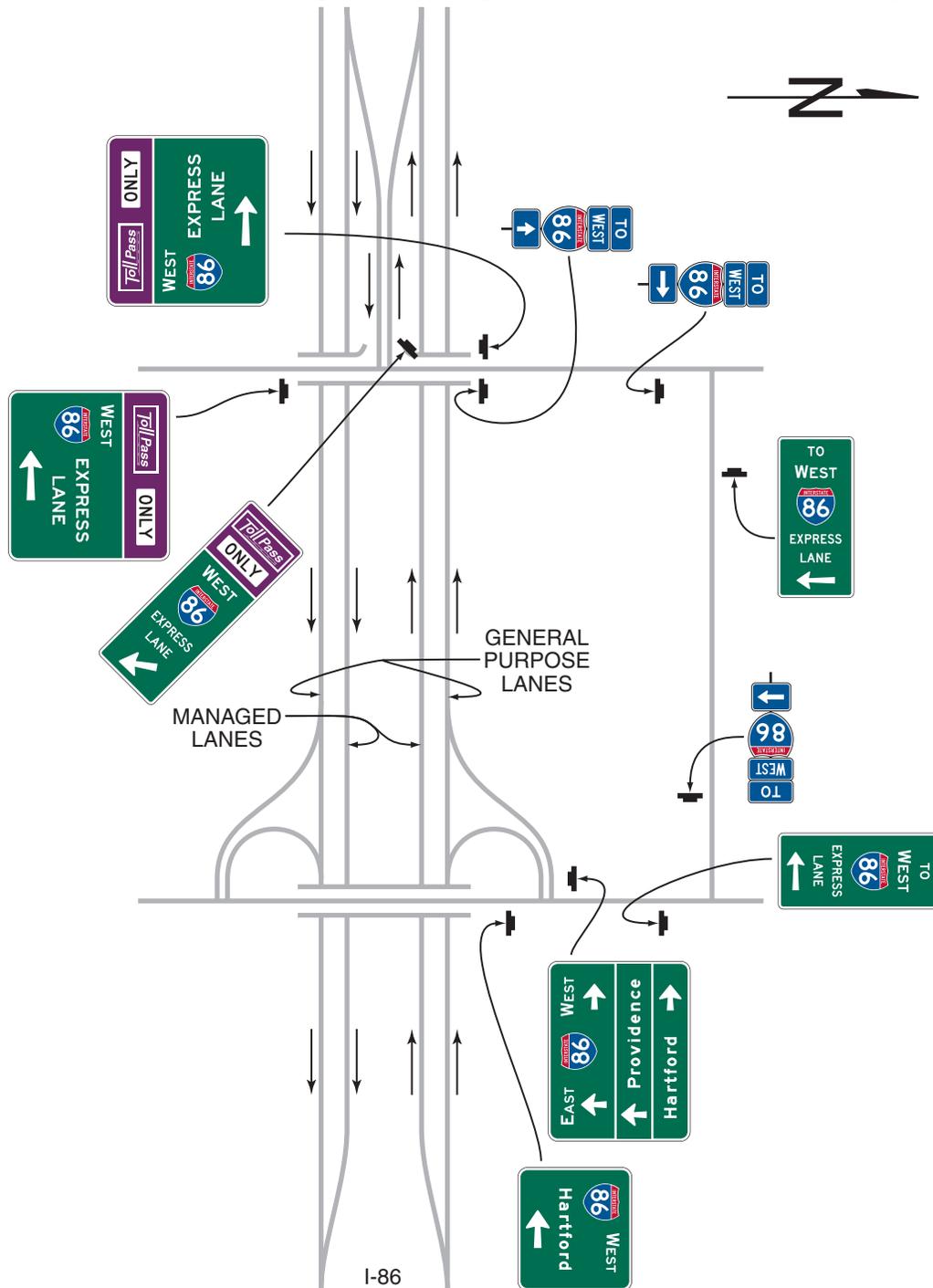
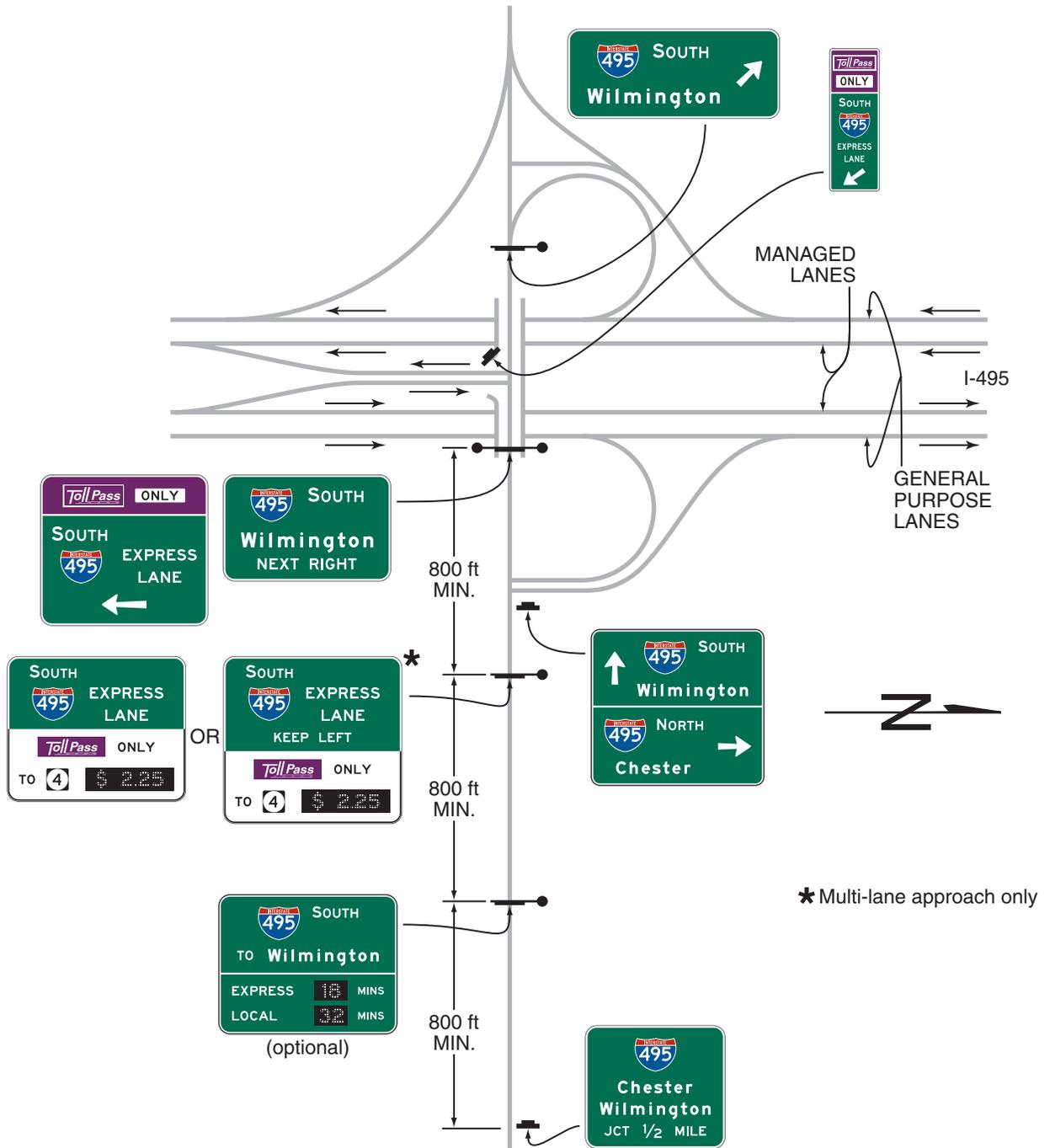


Figure 2G-29. Examples of Guide Signs for Separate Entrance Ramps to General-Purpose and Priced Managed Lanes from the Same Crossroad



CHAPTER 2H. GENERAL INFORMATION SIGNS

Section 2H.01 Sizes of General Information Signs

Standard:

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

Support:

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

Option:

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

Section 2H.02 General Information Signs (I Series)

Support:

- 01 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 2H-1) or miscellaneous information signs (see Section 2H.04). 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 2M contains recreational and cultural interest area symbol signs that are sometimes used in combination with General Information signs.

Guidance:

- 02 *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 compliance with other guide signing.*

Table 2H-1. General Information Sign Sizes

Sign	Sign Designation	Section	Conventional Road	Freeway or Expressway
Reference Location (1 digit)	D10-1	2H.05	10 x 18	12 x 24
Intermediate Reference Location (2 digits)	D10-1a	2H.05	10 x 27	12 x 36
Reference Location (2 digits)	D10-2	2H.05	10 x 27	12 x 36
Intermediate Reference Location (3 digits)	D10-2a	2H.05	10 x 36	12 x 48
Reference Location (3 digits)	D10-3	2H.05	10 x 36	12 x 48
Intermediate Reference Location (4 digits)	D10-3a	2H.05	10 x 48	12 x 60
Enhanced Reference Location	D10-4	2H.06	18 x 54	18 x 54
Intermediate Enhanced Reference Location	D10-5	2H.06	18 x 60	18 x 60
Acknowledgement	D14-1	2H.08	36 x 30*	72 x 48*
Acknowledgement	D14-2	2H.08	36 x 30*	72 x 48*
Acknowledgement	D14-3	2H.08	42 x 24*	96 x 36*
Signals Set for XX MPH	I1-1	2H.03	24 x 36	—
Jurisdictional Boundary	I-2	2H.04	Varies x 18**	Varies x 36**
Geographical Features	I-3	2H.04	Varies x 18**	Varies x 36**
Airport	I-5	2H.02	24 x 24	30 x 30
Bus Station	I-6	2H.02	24 x 24	30 x 30
Train Station	I-7	2H.02	24 x 24	30 x 30
Library	I-8	2H.02	24 x 24	30 x 30
Vehicle Ferry Terminal	I-9	2H.02	24 x 24	30 x 30
Recycling Collection Center	I-11	2H.02	30 x 48	—
Light Rail Transit Station	I-12	2H.02	24 x 24	—

* The size shown is the maximum size for the corresponding roadway classification. The size of the sign and acknowledgement logo should be appropriately reduced where shorter legends are used.

** The size shown is for the typical sign illustrated in the figure. The size should be determined based on the amount of legend required for the sign.

Notes: 1. Larger signs may be used when appropriate, except for the D14 series signs
2. Dimensions in inches are shown as width x height

Standard:

03 **Except for political boundary signs, General Information signs shall have white legends and borders on green rectangular-shaped backgrounds.**

Option:

04 An information symbol sign (I-5 through I-9) 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.

05 The Advance Turn (M5 series) or Directional Arrow (M6 series) auxiliary signs shown in Figure 2H-1 with white arrows on green backgrounds may be used with General Information symbol signs to create a General Information Directional Assembly.

06 Guide signs for commercial service airports and non-carrier airports may be provided from the nearest Interstate, other freeway, or conventional highway intersection directly to the airport, normally not to exceed 15 miles. 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:

07 **Adequate trailblazer signs shall be in place prior to installing the airport guide signs.**

Support:

08 Location and placement of all airport guide signs depends upon the availability of longitudinal spacing on highways.

Option:

09 The Recycling Collection Center (I-11) symbol sign may be used to direct road users to recycling collection centers.

Guidance:

10 *The Recycling Collection Center symbol sign should not be used on freeways and expressways.*

Standard:

11 **If used on freeways or expressways, the Recycling Collection Center symbol sign shall be considered one of the supplemental sign destinations.**

Figure 2H-1. General Information and Miscellaneous Information Signs



- 12 **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:

- 13 The pictograph of a political jurisdiction (such as a State, county, or municipal corporation) may be displayed on a political boundary General Information sign.

Standard:

- 14 **If used, the height of a pictograph on a political boundary General Information sign shall not exceed two times the height of the upper-case letters of the principal legend on the sign. The pictograph shall comply with the provisions of Section 2A.06.**

Section 2H.03 Traffic Signal Speed Sign (I1-1)

Option:

- 01 The Traffic Signal Speed (I1-1) sign (see Figure 2H-1), reading SIGNALS SET FOR XX MPH, may be used to indicate a section of street or highway on which the traffic control signals are coordinated into a progressive system timed for a specified speed at all hours during which they are operated in a coordinated mode.

- 02 If different system progression speeds are set for different times of the day, a changeable message element may be used for the numerals of the Traffic Signal Speed (I1-1) sign. If the system is operated in coordinated mode only during certain times, a blank-out version of the Traffic Signal Speed (I1-1) sign may be used to display the message only during those times.

Guidance:

- 03 *If used, the sign should be mounted as near as practical to each intersection where the timed speed changes, and at intervals of several blocks throughout any section where the timed speed remains constant.*

Standard:

- 04 **The Traffic Signal Speed sign shall be a minimum of 24 x 36 inches with the longer dimension vertical. It shall have a white message and border on a green background.**

Section 2H.04 Miscellaneous Information Signs

Support:

- 01 Miscellaneous information are used to point out geographical features, such as rivers and summits, and other jurisdictional boundaries (see Section 2H.02). Figure 2H-1 shows examples of miscellaneous information (I-2 and I-3) signs.

Option:

- 02 Miscellaneous information signs may be used if they do not interfere with signing for interchanges or other critical points.

Guidance:

- 03 *Miscellaneous information 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 information signs are to be of value to the road user, they should be consistent with other 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 compliance with other signing.*

Section 2H.05 Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Location Signs (D10-1a through D10-3a)

Support:

- 01 There are two types of reference location signs:
- A. Reference Location (D10-1, 2, and 3) signs show an integer distance point along a highway, and
 - B. Intermediate Reference Location (D10-1a, 2a, and 3a) signs also show a decimal between integer distance points along a highway.

Standard:

- 02 **Except when Enhanced Reference Location signs (see Section 2H.06) are used instead, Reference Location (D10-1 through D10-3) signs 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.**

Option:

03 Reference Location (D10-1 to D10-3) signs (see Figure 2H-2) 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.

04 To augment the reference location sign system, Intermediate Reference Location (D10-1a to D10-3a) signs (see Figure 2H-3), which show the tenth of a mile with a decimal point, may be installed at one tenth of a mile intervals, or at some other regular spacing.

Standard:

05 When Intermediate Reference Location (D10-1a to D10-3a) signs are used to augment the reference location sign system, the reference location sign at the integer mile point shall display a decimal point and a zero numeral.

06 When placed on freeways or expressways, reference location signs shall contain 10-inch white numerals on a 12-inch wide green background with a white border. The signs shall be 24, 36, or 48 inches in height for one, two, or three digits, respectively, and shall contain the word MILE in 4-inch white letters.

07 When placed on conventional roads, reference location signs shall contain 6-inch white numerals on a green background that is at least 10 inches wide with a white border. The signs shall contain the word MILE in 4-inch white letters.

08 Reference location signs shall have a minimum mounting height of 4 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the roadway, and shall not be governed by the mounting height requirements prescribed in Section 2A.18.

09 The distance numbering shall be continuous for each route within a State, except where overlaps occur (see Section 2E.31). 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.

Guidance:

10 The route selected for continuity of distance numbering should also have continuity in interchange exit numbering (see Section 2E.31).

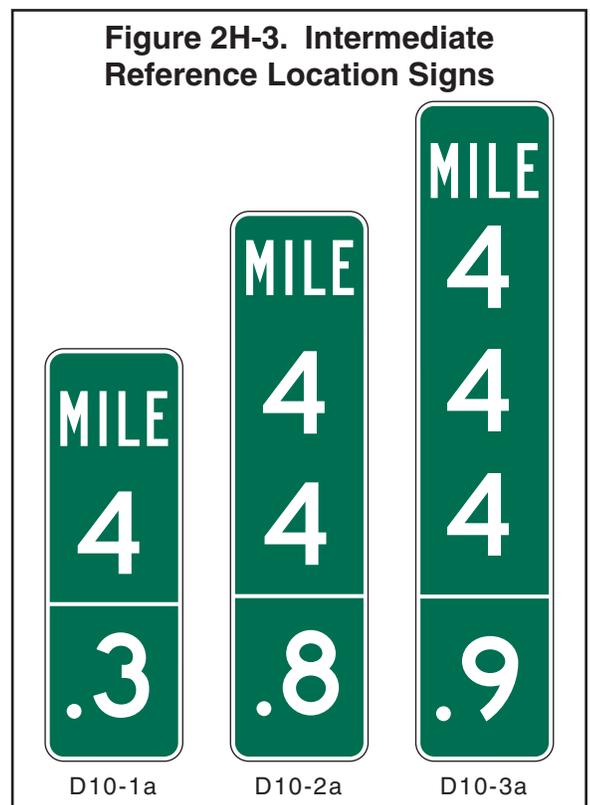
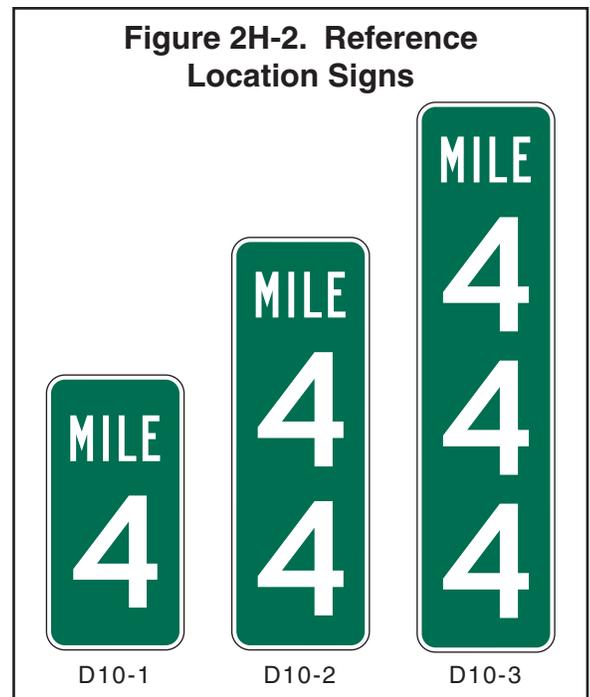
11 On a route without reference location sign continuity, the first reference location sign beyond the overlap should indicate the total distance traveled on the route so that road users will have a means of correlating their travel distance between reference location signs with that shown on their odometer.

Standard:

12 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:

13 Zero distance should begin at the south and west State lines, or at the south and west terminus points where routes begin within a State.



Standard:

- 14 **Except as provided in Paragraph 15, reference location signs shall be installed on the right-hand side of the roadway.**

Option:

- 15 Where conditions limit or restrict the use of reference location signs on the right-hand 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 30 feet from the edge of the pavement.

- 16 If a reference location sign cannot be installed in the correct location, it may be moved in either direction as much as 50 feet.

Guidance:

- 17 *If a reference location sign cannot be placed within 50 feet of the correct location, it should be omitted.*

Section 2H.06 Enhanced Reference Location Signs (D10-4, D10-5)

Support:

- 01 There are two types of enhanced reference location signs:
 A. Enhanced Reference Location signs (D10-4), and
 B. Intermediate Enhanced Reference Location signs (D10-5).

Option:

- 02 Enhanced Reference Location (D10-4) signs (see Figure 2H-4), which enhance the reference location sign system by identifying the route, may be placed on freeways or expressways (instead of Reference Location signs) or on conventional roads.

- 03 To augment an enhanced reference location sign system, Intermediate Enhanced Reference Location (D10-5) signs (see Figure 2H-4), which show the tenth of a mile with a decimal point, may be installed along any section of a highway route or ramp at one tenth of a mile intervals, or at some other regular spacing.

Standard:

- 04 **If enhanced reference location signs are used, they shall be vertical signs having blue or green backgrounds with white numerals, letters, and borders, except for the route shield, which shall be the standard color and shape. The top line shall consist of the cardinal direction for the roadway. The second line shall consist of the applicable route shield for the roadway. The third line shall identify the mile reference for the location and the bottom line of the Intermediate Enhanced Reference Location sign shall give the tenth of a mile reference for the location. The bottom line of the Intermediate Enhanced Reference Location sign shall contain a decimal point. The height of the legend on enhanced reference location signs shall be a minimum of 6 inches. The height of the route shield on enhanced reference location signs shall be a minimum of 12 inches.**

- 05 **The background color shall be the same for all enhanced reference location signs within a jurisdiction.**

Support:

- 06 The provisions in Section 2H.05 regarding mounting height, distance numbering and measurements, sign continuity, and placement with respect to the right-hand shoulder and/or median for reference location signs also apply to enhanced reference location signs.



Section 2H.07 Auto Tour Route Signs

Support:

- 01 Auto Tour Route signs are informational signs, plaques, or shields designed to provide road users with route guidance in following an auto tour route of particular cultural, historical, or educational significance.
- 02 Signed auto tour routes are used in some cases to generally follow the historical route of a trail, such as the National Historic Trails administered by the National Park Service. Examples include auto tour routes that parallel the Lewis and Clark National Historic Trail, the Oregon National Historic Trail, and the Santa Fe National Historic Trail.

Guidance:

- 03 *If shields or other similar signs are used to provide route guidance in following an auto tour route, they should be designed in accordance with the sizes and other design principles for route signs, such as those described in Sections 2D.10 through 2D.12.*

Option:

- 04 Auto Tour Route signs may be installed on a highway if they have been approved by the appropriate transportation agency.

Standard:

- 05 **Auto Tour Route signs shall not be installed on freeways or expressways, except as necessary to provide continuity between discontinuous segments of conventional roadways that are designated as auto tour routes, for which the freeway or expressway provides the only connection between the segments. If installed on freeways or expressways, Auto Tour Route signs shall be installed as independent trailblazer assemblies (see Sections 2D.35 and 2E.27) and shall not be installed with other Route signs or confirmation assemblies or on guide signs. If installed on freeways or expressways, Auto Tour Route trailblazer assemblies shall be installed at less frequent intervals than route confirmation assemblies.**

Section 2H.08 Acknowledgment Signs

Support:

- 01 Acknowledgment signs are a way of recognizing a company, business, or volunteer group that provides a highway-related service. Acknowledgment signs include sponsorship signs for adopt-a-highway litter removal programs, maintenance of a parkway or interchange, and other highway maintenance or beautification sponsorship programs.

Guidance:

- 02 *A State or local highway agency that elects to have an acknowledgment sign program should develop an acknowledgment sign policy. The policy should require that eligible sponsoring organizations comply with State laws prohibiting discrimination based on race, religion, color, age, sex, national origin, and other applicable laws. The acknowledgment sign policy should include all of the provisions regarding sign placement and sign design that are described in this Section.*

Standard:

- 03 **Because regulatory, warning, and guide signs have a higher priority, acknowledgment signs shall only be installed where adequate spacing is available between the acknowledgment sign and other higher priority signs. Acknowledgment signs shall not be installed in a position where they would obscure the road users' view of other traffic control devices.**
- 04 **Acknowledgment signs shall not be installed at any of the following locations:**
- A. **On the front or back of, adjacent to, or around any other traffic control device, including traffic signs, highway traffic signals, and changeable message signs;**
 - B. **On the front or back of, adjacent to, or around the supports or structures of other traffic control devices, or bridge piers; or**
 - C. **At key decision points where a road user's attention is more appropriately focused on other traffic control devices, roadway geometry, or traffic conditions, including exit and entrance ramps, intersections, grade crossings, toll plazas, temporary traffic control zones, and areas of limited sight distance.**

Guidance:

- 05 *The minimum spacing between acknowledgment signs and any other traffic control signs, except parking regulation signs, should be:*
- A. *150 feet on roadways with speed limits of less than 30 mph,*
 - B. *200 feet on roadways with speed limits of 30 to 45 mph, and*
 - C. *500 feet on roadways with speed limits greater than 45 mph.*

- 06 *If the placement of a newly-installed higher-priority traffic control device, such as a higher-priority sign, a highway traffic signal, or a temporary traffic control device, conflicts with an existing acknowledgment sign, the acknowledgment sign should be relocated, covered, or removed.*

Option:

- 07 State or local highway agencies may develop their own acknowledgment sign designs and may also use their own pictograph (see definition in Section 1A.13) and/or a brief jurisdiction-wide program slogan as part of any portion of the acknowledgment sign, provided that the signs comply with the provisions for shape, color, and lettering style in this Chapter and in Chapter 2A.

Guidance:

- 08 *Acknowledgment signs should clearly indicate the type of highway services provided by the sponsor.*

Standard:

- 09 **In addition to the general provisions for signs described in Chapter 2A and the sign design principles covered in the “Standard Highway Signs and Markings” book (see Section 1A.11), acknowledgment sign designs developed by State or local highway agencies shall comply with the following provisions:**
- A. **Neither the sign design nor the sponsor acknowledgment logo shall contain any contact information, directions, slogans (other than a brief jurisdiction-wide program slogan, if used), telephone numbers, or Internet addresses, including domain names and uniform resource locators (URL);**
 - B. **Except for the lettering, if any, on the sponsor acknowledgment logo, all of the lettering shall be in upper-case letters as provided in the “Standard Highway Signs and Markings” book (see Section 1A.11);**
 - C. **In order to keep the main focus on the highway-related service and not on the sponsor acknowledgment logo, the area reserved for the sponsor acknowledgment logo shall not exceed 1/3 of the total area of the sign and shall be a maximum of 8 square feet, and shall not be located at the top of the sign;**
 - D. **The entire sign display area shall not exceed 24 square feet;**
 - E. **The sign shall not contain any messages, lights, symbols, or trademarks that resemble any official traffic control devices;**
 - F. **The sign shall not contain any external or internal illumination, light-emitting diodes, luminous tubing, fiber optics, luminescent panels, or other flashing, moving, or animated features; and**
 - G. **The sign shall not distract from official traffic control messages such as regulatory, warning, or guidance messages.**

Support:

- 10 Examples of acknowledgment sign designs are shown in Figure 2H-5.

Figure 2H-5. Examples of Acknowledgment Sign Designs



CHAPTER 2I. GENERAL SERVICE SIGNS

Section 2I.01 Sizes of General Service Signs

Standard:

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

Support:

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

Option:

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

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

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway
Rest Area XX Miles	D5-1	2I.05	66 x 36*	96 x 54*
Rest Area Next Right	D5-1a	2I.05	78 x 36*	120 x 60* (F) 114 x 48* (E)
Rest Area (with arrow)	D5-2	2I.05	66 x 36*	96 x 54*
Rest Area Gore	D5-2a	2I.05	42 x 48*	78 x 78* (F) 66 x 72* (E)
Rest Area (with horizontal arrow)	D5-5	2I.05	42 x 48*	—
Next Rest Area XX Miles	D5-6	2I.05	60 x 48*	90 x 72*
Rest Area Tourist Info Center XX Miles	D5-7	2I.08	90 x 72*	114 x 102* (F) 132 x 96* (E)
Rest Area Tourist Info Center (with arrow)	D5-8	2I.08	84 x 72*	120 x 102* (F) 120 x 96* (E)
Rest Area Tourist Info Center Next Right	D5-11	2I.08	90 x 72*	144 x 102* (F) 132 x 96* (E)
Interstate Oasis	D5-12	2I.04	—	156 x 78
Interstate Oasis (plaque)	D5-12P	2I.04	—	114 x 48
Brake Check Area XX Miles	D5-13	2I.06	84 x 48	126 x 72
Brake Check Area (with arrow)	D5-14	2I.06	78 x 60	96 x 72
Chain-Up Area XX Miles	D5-15	2I.07	66 x 48	96 x 72
Chain-Up Area (with arrow)	D5-16	2I.07	72 x 54	96 x 66
Telephone	D9-1	2I.02	24 x 24	30 x 30
Hospital	D9-2	2I.02	24 x 24	30 x 30
Camping	D9-3	2I.02	24 x 24	30 x 30
Trailer Camping	D9-3a	2I.02	24 x 24	30 x 30
Litter Container	D9-4	2I.02	24 x 30	36 x 48
Handicapped	D9-6	2I.02	24 x 24	30 x 30
Van Accessible (plaque)	D9-6P	2I.02	18 x 9	—
Gas	D9-7	2I.02	24 x 24	30 x 30
Food	D9-8	2I.02	24 x 24	30 x 30
Lodging	D9-9	2I.02	24 x 24	30 x 30
Tourist Information	D9-10	2I.02	24 x 24	30 x 30
Diesel Fuel	D9-11	2I.02	24 x 24	30 x 30
Alternative Fuel - Compressed Natural Gas	D9-11a	2I.02	24 x 24	30 x 30
Electric Vehicle Charging	D9-11b	2I.02	24 x 24	30 x 30
Electric Vehicle Charging (plaque)	D9-11bP	2I.02	24 x 18	30 x 24
Alternative Fuel - Ethanol	D9-11c	2I.02	24 x 24	30 x 30
RV Sanitary Station	D9-12	2I.02	24 x 24	30 x 30
Emergency Medical Services	D9-13	2I.02	24 x 24	30 x 30

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

Sign or Plaque	Sign Designation	Section	Conventional Road	Freeway or Expressway
Hospital (plaque)	D9-13aP	2I.02	24 x 12	30 x 12
Ambulance Station (plaque)	D9-13bP	2I.02	24 x 12	30 x 15
Emergency Medical Care (plaque)	D9-13cP	2I.02	24 x 18	30 x 24
Trauma Center (plaque)	D9-13dP	2I.02	24 x 12	30 x 15
Police	D9-14	2I.02	24 x 24	30 x 30
Propane Gas	D9-15	2I.02	24 x 24	30 x 30
Truck Parking	D9-16	2I.02	24 x 24	30 x 30
Next Services XX Miles (plaque)	D9-17P	2I.02	102 x 24	156 x 30
General Services (up to 6 symbols)	D9-18	2I.03	—	96 x 60
General Services	D9-18a	2I.03	—	96 x 60
General Services (up to 6 symbols) with Action or Exit Information	D9-18b	2I.03	108 x 84	132 x 114 (F) 132 x 108 (E)
General Services with Action or Exit Information	D9-18c	2I.03	72 x 60**	132 x 108** (F) 108 x 84** (E)
Pharmacy	D9-20	2I.02	24 x 24	30 x 30
24-Hour (plaque)	D9-20aP	2I.02	24 x 12	30 x 12
Telecommunication Device for the Deaf	D9-21	2I.05	24 x 24	30 x 30
Wireless Internet	D9-22	2I.05	24 x 24	30 x 30
Weather Information	D12-1	2I.09	84 x 48	132 x 84
Carpool Information	D12-2	2I.11	60 x 42	96 x 66
Channel 9 Monitored	D12-3	2I.09	84 x 48	132 x 84
Emergency Call 911	D12-4	2I.09	66 x 30	96 x 48
Travel Info Call 511 (pictograph)	D12-5	2I.10	42 x 60	66 x 78
Travel Info Call 511	D12-5a	2I.10	48 x 36	66 x 48

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

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

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

Section 2I.02 General Service Signs for Conventional Roads

Support:

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

Option:

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

Standard:

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

Guidance:

- 04 *General Service signs should be installed at a suitable distance in advance of the turn-off point or intersecting highway.*
- 05 *States that elect to provide General Service signing should establish a statewide policy or warrant for its use, and criteria for the availability of services. Local jurisdictions electing to use such signing should follow State policy for the sake of uniformity.*

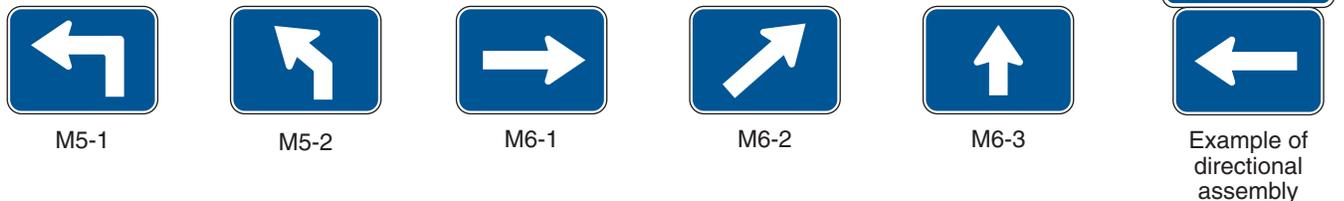
Option:

- 06 Individual States may sign for whatever alternative fuels are available at appropriate locations.

Figure 2I-1. General Service Signs and Plaques



Advance Turn and Directional Arrow Auxiliary Signs for use with General Service Signs



Standard:

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

Option:

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

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

Standard:

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

Support:

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

Option:

12 If the distance to the next point at which services are available is 10 miles or more, a NEXT SERVICES XX MILES (D9-17P) plaque (see Figure 2I-2) may be installed below the General Service sign.

13 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.

Guidance:

14 *When the D9-6 sign is used in accordance with Paragraph 13, and van-accessible parking is available at the facility, a VAN ACCESSIBLE (D9-6P) plaque (see Figure 2I-1) should be mounted below the D9-6 sign.*

Option:

15 The Recreational Vehicle Sanitary Station (D9-12) sign may be used as needed to indicate the availability of facilities designed for the use of dumping wastes from recreational vehicle holding tanks.

16 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.

17 The Emergency Medical Services (D9-13) symbol sign may be used to identify medical service facilities that have been included in the Emergency Medical Services system under a signing policy developed by the State and/or local highway agency.

Standard:

18 **The Emergency Medical Services symbol sign shall not be used to identify services other than qualified hospitals, ambulance stations, and qualified free-standing emergency medical treatment centers. If used, the Emergency Medical Services symbol sign shall be supplemented by a sign identifying the type of service provided.**

Option:

19 The Emergency Medical Services symbol sign may be used above the HOSPITAL (D9-13a) sign or Hospital (D9-2) symbol sign or above a sign with the legend AMBULANCE STATION (D9-13b), EMERGENCY MEDICAL CARE (D9-13c), or TRAUMA CENTER (D9-13d). The Emergency Medical Services symbol sign may also be used to supplement Telephone (D9-1), Channel 9 Monitored (D12-3), or POLICE (D9-14) signs.

Standard:

20 **The legend EMERGENCY MEDICAL CARE shall not be used for services other than qualified free-standing emergency medical treatment centers.**

Guidance:

21 *Each State should develop guidelines for the implementation of the Emergency Medical Services symbol sign.*

Figure 2I-2. Example of Next Services Plaque

NEXT SERVICES
23 MILES

D9-17P

- 22 *The State should consider the following guidelines in the preparation of its policy:*
- A. **AMBULANCE**
 - 1. *24-hour service, 7 days per week.*
 - 2. *Staffed by two State-certified persons trained at least to the basic level.*
 - 3. *Vehicular communications with a hospital emergency department.*
 - 4. *Operator should have successfully completed an emergency-vehicle operator training course.*
 - B. **HOSPITAL**
 - 1. *24-hour service, 7 days per week.*
 - 2. *Emergency department facilities with a physician (or emergency care nurse on duty within the emergency department with a physician on call) trained in emergency medical procedures on duty.*
 - 3. *Licensed or approved for definitive medical care by an appropriate State authority.*
 - 4. *Equipped for radio voice communications with ambulances and other hospitals.*
 - C. **Channel 9 Monitored**
 - 1. *Provided by either professional or volunteer monitors.*
 - 2. *Available 24 hours per day, 7 days per week.*
 - 3. *The service should be endorsed, sponsored, or controlled by an appropriate government authority to guarantee the level of monitoring.*

Section 2I.03 General Service Signs for Freeways and Expressways

Support:

- 01 *General Service (D9-18 series) signs (see Figure 2I-3) are generally not appropriate at major interchanges (see definition in Section 2E.32) and in urban areas.*

Standard:

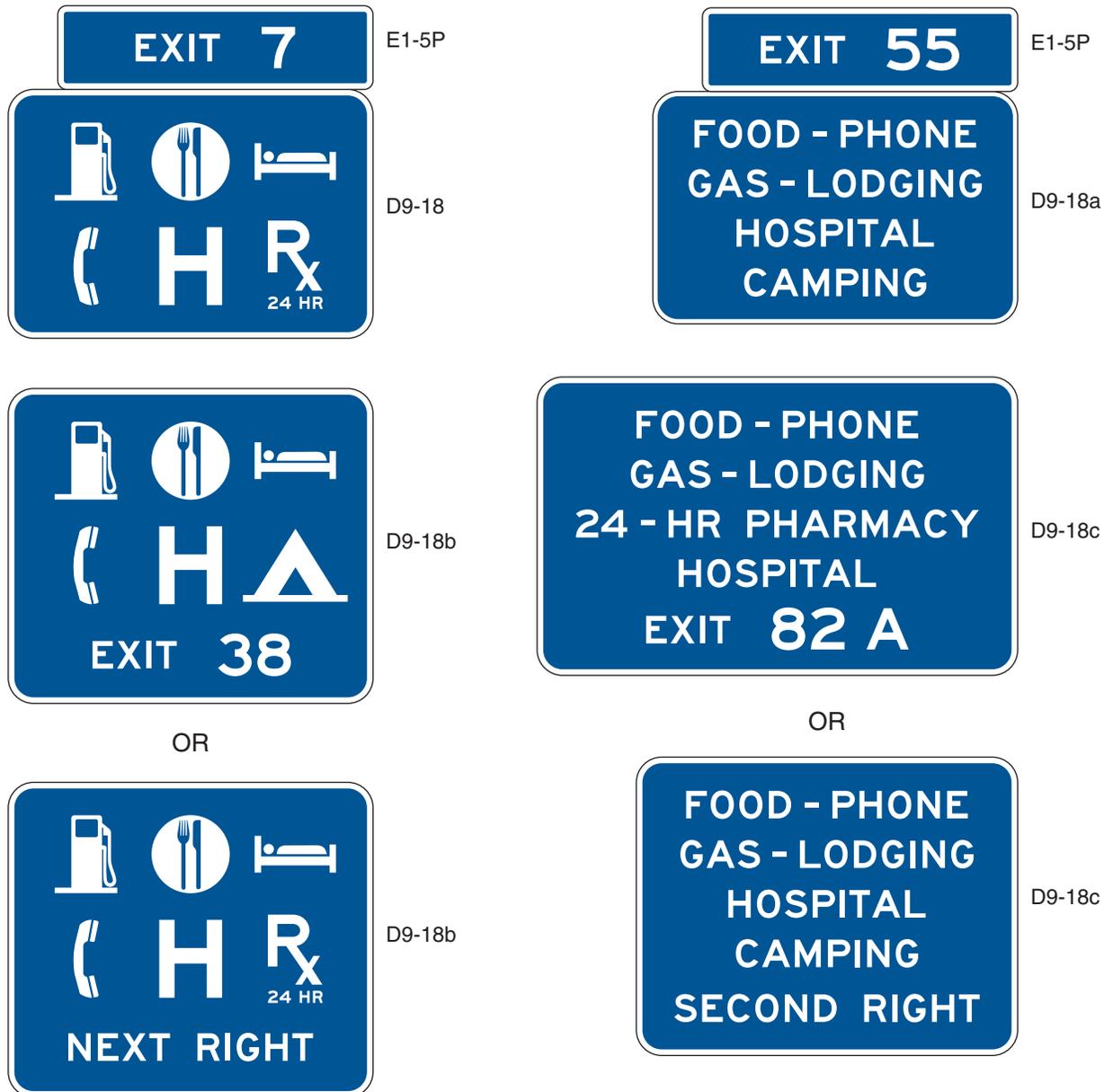
- 02 **General Service signs shall have white letters, symbols, arrows, and borders on a blue background. Letter and numeral sizes shall comply with the minimum requirements of Tables 2E-2 through 2E-5. All approved symbols shall be permitted as alternatives to word messages, but symbols and word service 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.**

Option:

- 03 *For numbered interchanges, the exit number may be incorporated within the sign legend (D9-18b) or displayed on an Exit Number (E1-5P) plaque (see Section 2E.31).*

Guidance:

- 04 *Distance to services should be displayed on General Service signs where distances are more than 1 mile.*
- 05 *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.*
- 06 *Only services that fulfill the needs of the road user should be displayed on General Service signs. If State or local agencies elect to provide General Service signing, there should be a statewide policy for such signing and criteria for the availability of the various types of services. The criteria should consider the following:*
- A. *Gas, Diesel, LP Gas, EV Charging, and/or other alternative fuels 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*
 - 4. *Modern sanitary facilities.*

Figure 2I-3. Examples of General Service Signs with and without Exit Numbering

- 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. 24-Hour Pharmacy if a pharmacy is open, with a State-licensed pharmacist present and on duty, 24 hours per day, 7 days per week and is located within 3 miles of an interchange on the Federal-aid system.
- G. 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.

Standard:

- 07 **For any service that is operated on a seasonal basis only, the General Service signs shall be removed or covered during periods when the service is not available.**
- 08 **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:

- 09 *The General Service sign should contain the interchange number, if any, as shown in Figure 2I-3.*

Option:

- 10 If the distance to the next point where services are available is greater than 10 miles, a NEXT SERVICES XX MILES (D9-17P) plaque (see Figure 2I-2) may be installed below the Exit Direction sign.

Standard:

- 11 **Signs for services shall comply with the format for General Service signs (see Section 2I.02) and as provided in this Manual. No more than six general road user services shall be displayed on one sign, which includes any appended supplemental signs or plaques. General Service signs shall carry the legends for one or more of the following services: Food, Gas, Lodging, Camping, Phone, Hospital, 24-Hour Pharmacy, or Tourist Information.**
- 12 **The qualified services available shall be displayed at specific locations on the sign.**
- 13 **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:

- 14 *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 2I-3).*

Option:

- 15 Signing for DIESEL, LP-Gas, or other alternative fuel services may be substituted for any of the general services or appended to such signs. The International Symbol of Accessibility for the Handicapped (D9-6) sign (see Figure 2I-1) may be used for facilities that qualify.

Guidance:

- 16 *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*

Option:

- 17 Substitutions of other services for any of the services described in Paragraph 16 may be made by placing the substitution in the lower right (four or six services) or extreme right (three services) portion of the sign. 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 Diesel Fuel (D9-11) symbol or the LP-Gas (D9-15) symbol may be substituted for the symbol representing fuel or appended to such assemblies. The Tourist Information (D9-10) symbol or the 24-Hour Pharmacy (D9-20 and D9-20aP) symbol may be substituted on any of the configurations provided in Paragraph 16.
- 18 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 supplemental plaque displaying one to three services (words or symbols) may be appended below a post-mounted interchange guide sign.

Standard:

- 19 **If more than three services become available at rural interchange areas where limited road user services were anticipated, the appended supplemental plaque described in Paragraph 18 shall be removed and replaced with an independently mounted General Service sign as described in this Section.**

Option:

- 20 A separate Telephone Service (D9-1) sign (see Figure 2I-1) may be installed if telephone facilities are located adjacent to the route at places where public telephones would not normally be expected.

- 21 The Recreational Vehicle Sanitary Station (D9-12) sign (see Figure 2I-1) may be used as needed to indicate the availability of facilities designed for dumping wastes from recreational vehicle holding tanks.
- 22 In some locations, signs may be used to indicate that services are not available.
- 23 A separate Truck Parking (D9-16) sign (see Figure 2I-1) may be mounted below the other general road user services to direct truck drivers to designated parking areas.

Section 2I.04 Interstate Oasis Signing

Support:

- 01 An Interstate Oasis is a facility near an Interstate highway that provides products and services to the public, 24-hour access to public restrooms, and parking for automobiles and heavy trucks. Interstate Oasis guide signs inform road users on Interstate highways as to the presence of an Interstate Oasis at an interchange and which businesses have been designated by the State within which they are traveling as having met the eligibility criteria of the Federal Highway Administration's Interstate Oasis policy. The FHWA's policy, which is dated October 18, 2006, and which can be viewed on the MUTCD website at <http://mutcd.fhwa.dot.gov/res-policy.htm>, provides a more detailed definition of an Interstate Oasis and specifies the eligibility criteria for an Interstate Oasis designation in compliance with the requirements of laws enacted by Congress.

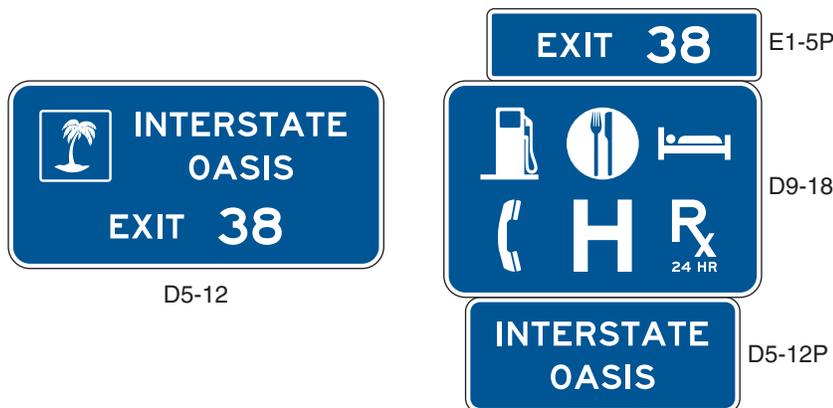
Guidance:

- 02 If a State elects to provide or allow Interstate Oasis signing (see Figure 2I-4), there should be a statewide policy, program, procedures, and criteria for the designation and signing of a facility as an Interstate Oasis that complies with FHWA's policy and with the provisions of this Section.
- 03 States electing to provide or allow Interstate Oasis signing should use the following signing practices on the freeway for any given exit to identify the availability of a designated Interstate Oasis:
- A. If adequate sign spacing allows, a separate Interstate Oasis (D5-12) sign should be installed in an effective location with spacing of at least 800 feet from other adjacent guide signs, including any Specific Service signs. This Interstate Oasis sign should be located upstream from the Advance Guide sign or between the Advance Guide sign and the Exit Direction sign for the exit leading to the Interstate Oasis. The Interstate Oasis sign should have a white legend with a letter height of at least 10 inches and a white border on a blue background and should contain the words INTERSTATE OASIS and the exit number or, for an unnumbered interchange, an action message such as NEXT RIGHT. The names or logos of the businesses designated as Interstate Oases should not be included on this sign.
 - B. If the spacing of the other guide signs precludes the use of a separate sign as described in Item A, an INTERSTATE OASIS (D5-12P) supplemental plaque with a letter height of at least 10 inches and with a white legend and border on a blue background should be appended above or below an existing D9-18 series General Service sign for the interchange.
- 04 If a separate Interstate Oasis (D5-12) sign is installed, an Interstate Oasis sign panel should be incorporated into the design of the sign (see Figure 2I-4).

Standard:

- 05 The Interstate Oasis sign panel shall only be used on the separate Interstate Oasis sign where it is accompanied by the words INTERSTATE OASIS and shall not be used independently without the words.

Figure 2I-4. Examples of Interstate Oasis Signs and Plaques



Option:

- 06 If Specific Service signing is provided at the interchange, a business designated as an Interstate Oasis and having a business logo sign panel on the Food and/or Gas Specific Service signs may use the bottom portion of the business logo sign panel to display the word OASIS.

Standard:

- 07 If Specific Services signs containing the OASIS legend as a part of the business logo(s) are not used on the ramp and if the Interstate Oasis is not clearly visible and identifiable from the exit ramp, a sign with a white INTERSTATE OASIS legend with a letter height of at least 6 inches and a white border on a blue background shall be provided on the exit ramp to indicate the direction and distance to the Interstate Oasis.
- 08 If needed, additional trailblazer guide signs shall be used along the crossroad to guide road users to an Interstate Oasis.

Section 2I.05 Rest Area and Other Roadside Area Signs

Standard:

- 01 Rest Area signs (see Figure 2I-5) shall have a retroreflective white legend and border on a blue background.
- 02 Signs that include the legend REST AREA shall be used only where parking and restroom facilities are available.

Guidance:

- 03 A roadside area that does not contain restroom facilities should be signed to indicate the major road user service that is provided. For example, the sign legends for an area with only parking should use the words PARKING AREA instead of REST AREA. The sign legends for an area with only picnic tables and parking should use words such as PICNIC AREA, ROADSIDE TABLE, or ROADSIDE PARK instead of REST AREA.
- 04 Rest areas that have tourist information and welcome centers should be signed as discussed in Section 2I.08.
- 05 Scenic area signing should be consistent with that provided for rest areas, except that the legends should use words such as SCENIC AREA, SCENIC VIEW, or SCENIC OVERLOOK instead of REST AREA.
- 06 If a rest area or other roadside area is provided on a conventional road, a D5-1 and/or D5-1b sign should be installed in advance of the rest area or other roadside area to permit the driver to reduce speed in preparation for leaving the highway. A D5-5 sign (or a D5-2 sign if an exit ramp is provided) should be installed at the turnoff point where the driver needs to leave the highway to access the rest area or other roadside area.
- 07 If a rest area or other roadside area is provided on a freeway or expressway, a D5-1 sign should be placed 1 mile and/or 2 miles in advance of the rest area.

Standard:

- 08 A D5-2 sign shall be placed at the rest area or other roadside area exit gore.

Figure 2I-5. Rest Area and Other Roadside Area Signs



NOTE: Alternate legends may be substituted for the REST AREA legend, such as PARKING AREA, PICNIC AREA, ROADSIDE TABLE, ROADSIDE PARK, SCENIC AREA, SCENIC VIEW, and SCENIC OVERLOOK.

Option:

- 09 A D5-1b sign may be placed between the D5-1 sign and the exit gore on a freeway or expressway. A second D5-1 sign may be used in place of the D5-1b sign with a distance to the nearest 1/2 or 1/4 mile displayed as a fraction rather than a decimal for distances of less than 1 mile.
- 10 To provide the road user with information on the location of succeeding rest areas, a NEXT REST AREA XX MILES (D5-6) sign (see Figure 2I-5) may be installed independently or as a supplemental sign mounted below one of the REST AREA advance guide signs.

Standard:

- 11 **All signs on freeways and expressways for rest and other roadside areas shall have letter and numeral sizes that comply with the minimum requirements of Tables 2E-2 through 2E-5. The sizes for General Service signs that have standardized designs shall be as shown in Table 2I-1.**

Option:

- 12 If the rest area has facilities for the physically impaired (see Section 2I.02), the International Symbol of Accessibility for the Handicapped (D9-6) sign (see Figure 2I-1) may be placed with or beneath the REST AREA advance guide sign.
- 13 If telecommunication devices for the deaf (TDD) are available at the rest area, the TDD (D9-21) symbol sign (see Figure 2I-1) may be used to supplement the advance guide signs for the rest area.
- 14 If wireless Internet services are available at the rest area, the Wi-Fi (D9-22) symbol sign (see Figure 2I-1) may be used to supplement the advance guide signs for the rest area.

Section 2I.06 Brake Check Area Signs (D5-13 and D5-14)*Guidance:*

- 01 *If an area has been provided for drivers to check the brakes on their vehicle, a BRAKE CHECK AREA XX MILES (D5-13) sign (see Figure 2I-6) should be installed in advance of the brake check area, and a D5-14 sign (see Figure 2I-6) should be placed at the entrance to the brake check area.*

Section 2I.07 Chain-Up Area Signs (D5-15 and D5-16)*Guidance:*

- 01 *If an area has been provided for drivers to pull off of the roadway to install chains on their tires, a CHAIN-UP AREA XX MILES (D5-15) sign (see Figure 2I-6) should be installed in advance of the chain-up area, and a D5-16 sign (see Figure 2I-6) should be placed at the entrance to the chain-up area.*

Section 2I.08 Tourist Information and Welcome Center Signs

Support:

- 01 Tourist information and welcome centers have been constructed within rest areas on freeways and expressways and are operated by either a State or a private organization. Others have been located within close proximity to these facilities and operated by civic clubs, chambers of commerce, or private enterprise.

Guidance:

- 02 *An excessive number of supplemental sign panels should not be installed with Tourist Information or Welcome Center signs so as not to overload the road user.*

Figure 2I-6. Brake Check Area and Chain-Up Area Signs

Standard:

03 **Tourist Information or Welcome Center signs (see Figure 2I-7) shall have a white legend and border on a blue background. Continuously staffed or unstaffed operation at least 8 hours per day, 7 days per week, shall be required.**

04 **If operated only on a seasonal basis, the Tourist Information or Welcome Center signs shall be removed or covered during the off seasons.**

Guidance:

05 *For freeway or expressway rest area locations that also serve as tourist information or welcome centers, the following signing criteria should be used:*

- A. *The locations for tourist information and welcome center Advance Guide, Exit Direction, and Exit Gore signs should meet the General Service signing requirements described in Section 2I.03.*
- B. *If the signing for the tourist information or welcome center is to be accomplished in conjunction with the initial signing for the rest areas, the message on the Advance Guide (D5-7) sign should be REST AREA, TOURIST INFO CENTER, XX MILES or REST AREA, STATE NAME (optional), WELCOME CENTER XX MILES. On the Exit Direction (D5-8 or D5-11) sign the message should be REST AREA, TOURIST INFO CENTER with a diagonally upward-pointing directional arrow (or NEXT RIGHT), or REST AREA, STATE NAME (optional), WELCOME CENTER with a diagonally upward-pointing directional arrow (or NEXT RIGHT).*
- C. *If the initial rest area Advance Guide and Exit Direction signing is in place, these signs should include, on supplemental signs, the legend TOURIST INFO CENTER or STATE NAME (optional), WELCOME CENTER.*
- D. *The Exit Gore sign should contain only the legend REST AREA with the arrow and should not be supplemented with any legend pertaining to the tourist information center or welcome center.*

Option:

06 An alternative to the supplemental TOURIST INFO CENTER legend is the Tourist Information (D9-10) sign (see Figure 2I-1), which may be appended beneath the REST AREA advance guide sign.

07 The name of the State or local jurisdiction may appear on the Advance Guide and Exit Direction tourist information/welcome center signs if the jurisdiction controls the operation of the tourist information or welcome center and the center meets the operating criteria set forth in this Manual and is consistent with State policies.

Guidance:

08 *For tourist information centers that are located off the freeway or expressway facility, additional signing criteria should be as follows:*

- A. *Each State should adopt a policy establishing the maximum distance that a tourist information center can be located from the interchange in order to be included on official signs.*
- B. *The location of signing should be in accordance with requirements pertaining to General Service signing (see Section 2I.03).*
- C. *Signing along the crossroad should be installed to guide the road user from the interchange to the tourist information center and back to the interchange.*

Option:

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

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



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

Section 2I.09 Radio Information Signing

Option:

01 Radio-Weather Information (D12-1) signs (see Figure 2I-8) may be used in areas where difficult driving conditions commonly result from weather systems. Radio-Traffic Information signs may be used in conjunction with traffic management systems.

Standard:

02 **Radio-Weather and Radio-Traffic Information signs shall have a white legend and border on a blue background. Only the numerical indication of the radio frequency shall be used to identify a station broadcasting travel-related weather or traffic information. No more than three frequencies shall be displayed on each sign. Only radio stations whose signal will be of value to the road user and who agree to broadcast either of the following two items shall be identified on Radio-Weather and Radio-Traffic Information signs:**

- A. Periodic weather warnings at a rate of at least once every 15 minutes during periods of adverse weather; or
- B. 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.

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



D12-1



D12-2



D12-3



D12-4

* The pictograph of the transportation agency or the travel information service or program may be used in place of the 511 pictograph (see Section 2I.08)



D12-5*



D12-5a

- 03 **If a station to be considered operates only on a seasonal basis, its signs shall be removed or covered during the off season.**

Guidance:

- 04 *The radio station should have a signal strength to adequately broadcast 70 miles 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:

- 05 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:

- 06 **Radio-Weather and Radio-Traffic Information signs installed in rest areas shall be positioned such that they are not visible from the main roadway.**

Option:

- 07 A Channel 9 Monitored (D12-3) sign (see Figure 2I-8) may be installed as needed. Official public agencies or their designees may be displayed as the monitoring agency on the sign.

Standard:

- 08 **Only official public agencies or their designee shall be displayed as the monitoring agency on the Channel 9 Monitored sign.**

Option:

- 09 An Emergency CALL XX (D12-4) sign (see Figure 2I-8), along with the appropriate number to call, may be used for cellular phone communications.

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

Option:

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

Standard:

- 03 **The logo of a commercial entity shall not be incorporated within the TRAVEL INFO CALL 511 sign.**
- 04 **The TRAVEL INFO CALL 511 sign shall have a white legend and border on a blue background.**

Guidance:

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

Section 2I.11 Carpool and Ridesharing Signing

Option:

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

Guidance:

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

Standard:

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

CHAPTER 2J. SPECIFIC SERVICE SIGNS

Section 2J.01 Eligibility

Standard:

- 01 **Specific Service signs shall be defined as guide signs that provide road users with business identification and directional information for services and for eligible attractions. Eligible service categories shall be limited to gas, food, lodging, camping, attractions, and 24-hour pharmacies.**

Guidance:

- 02 *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.*

Option:

- 03 Where an engineering study determines a need, Specific Service signs may be used on any class of highways.

Guidance:

- 04 *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:

- 05 **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.**

- 06 **The attraction services shall include only facilities which have the primary purpose of providing amusement, historical, cultural, or leisure activities to the public.**

- 07 **Distances to eligible 24-hour pharmacies shall not exceed 3 miles in any direction of an interchange on the Federal-aid system.**

Guidance:

- 08 *Except as provided in Paragraph 9, distances to eligible services other than pharmacies should not exceed 3 miles in any direction.*

Option:

- 09 If, within the 3-mile limit, facilities for the services being considered other than pharmacies are not available or choose not to participate in the program, the limit of eligibility may be extended in 3-mile increments until one or more facilities for the services being considered chooses to participate, or until 15 miles is reached, whichever comes first.

Guidance:

- 10 *If State or local agencies elect to provide Specific Service signing, there should be a statewide policy for such signing and criteria for the availability of the various types of services. The criteria should consider the following:*

A. *To qualify for a GAS logo sign panel, a business should have:*

1. *Vehicle services including gas and/or alternative fuels, oil, and water;*
2. *Continuous operation at least 16 hours per day, 7 days per week for freeways and expressways, and continuous operation at least 12 hours per day, 7 days per week for conventional roads;*
3. *Modern sanitary facilities and drinking water; and*
4. *Public telephone.*

B. *To qualify for a FOOD logo sign panel, a business should have:*

1. *Licensing or approval, where required;*
2. *Continuous operations to serve at least two meals per day, at least 6 days per week;*
3. *Modern sanitary facilities; and*
4. *Public telephone.*

C. *To qualify for a LODGING logo sign panel, a business should have:*

1. *Licensing or approval, where required;*
2. *Adequate sleeping accommodations;*
3. *Modern sanitary facilities; and*
4. *Public telephone.*

D. To qualify for a *CAMPING* logo sign panel, a business should have:

1. Licensing or approval, where required;
2. Adequate parking accommodations; and
3. Modern sanitary facilities and drinking water.

E. To qualify for an *ATTRACTION* logo sign panel, a facility should have:

1. Regional significance, in compliance with the provisions of Paragraph 6; and
2. Adequate parking accommodations.

Standard:

11 If State or local agencies elect to provide Specific Service signing for pharmacies, both of the following criteria shall be met for a pharmacy to qualify for signing:

- A. The pharmacy shall be continuously operated 24 hours per day, 7 days per week, and shall have a State-licensed pharmacist present and on duty at all times; and
- B. The pharmacy shall be located within 3 miles of an interchange on the Federal-aid system.

Support:

12 Section 2I.04 contains information regarding the Interstate Oasis program.

Section 2J.02 Application

Standard:

01 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 24-hour pharmacy, attraction, camping, lodging, food, and gas services, in that order.

02 A Specific Service sign shall display the word message GAS, FOOD, LODGING, CAMPING, ATTRACTION, or 24-HOUR PHARMACY, an appropriate directional legend such as the word message EXIT XX, NEXT RIGHT, SECOND RIGHT, or directional arrows, and the related logo sign panels.

03 No more than three types of services shall be represented on any sign or sign assembly. If three types of services are displayed on one sign, then the logo sign panels shall be limited to two for each service type (for a total of six logo sign panels). If two types of services are displayed on one sign, then the logo sign panels shall be limited to either three for each service type (for a total of six logo sign panels) or four for one service type and two for the other service type (for a total of six logo sign panels). The legend and logo sign 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.

04 No service type shall appear on more than two signs (see Paragraph 6).

05 The signs shall have a blue background, a white border, and white legends of upper-case letters, numbers, and arrows.

Guidance:

06 Where a service type is displayed on two signs, the signs for that service should follow one another in succession.

07 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:

08 General Service signs (see Sections 2I.02 and 2I.03) may be used in conjunction with Specific Service signs for eligible types of services that are not represented by a Specific Service sign.

Support:

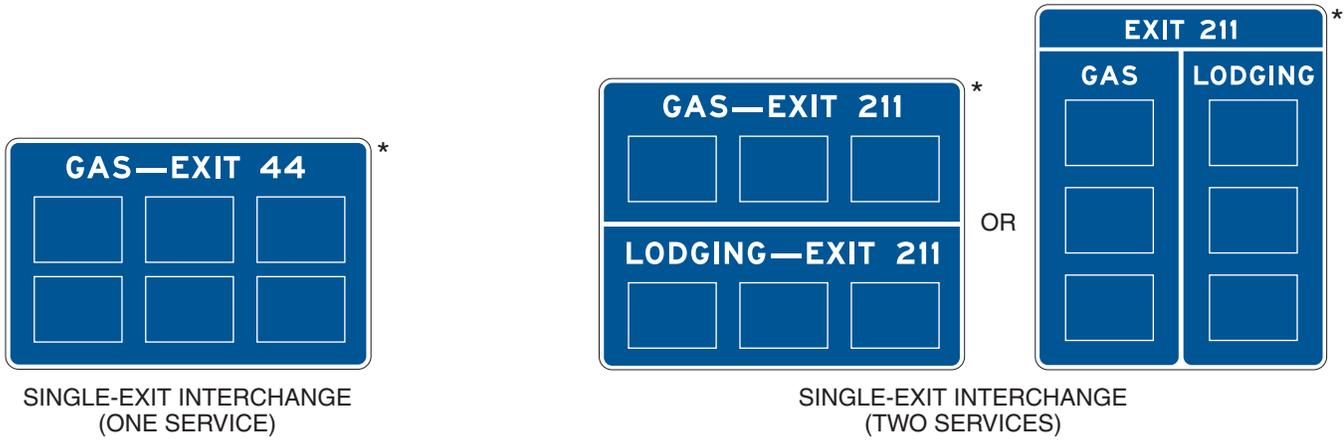
09 Examples of Specific Service signs are shown in Figure 2J-1. Examples of sign locations are shown in Figure 2J-2.

Section 2J.03 Logos and Logo Sign Panels

Standard:

01 A logo shall be either an identification symbol/trademark or a word message. Each logo shall be placed on a separate logo sign panel that 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.

Figure 2J-1. Examples of Specific Service Signs



* See Section 2J.07 for option of displaying exit number on a separate plaque instead of on the sign

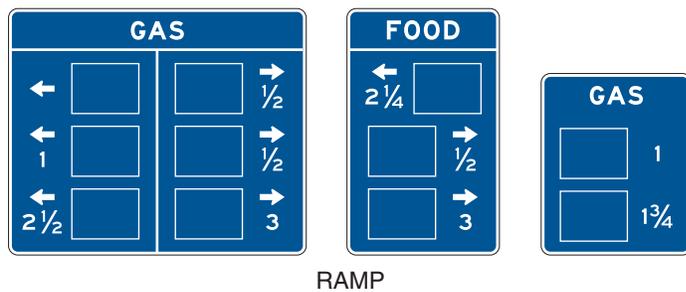
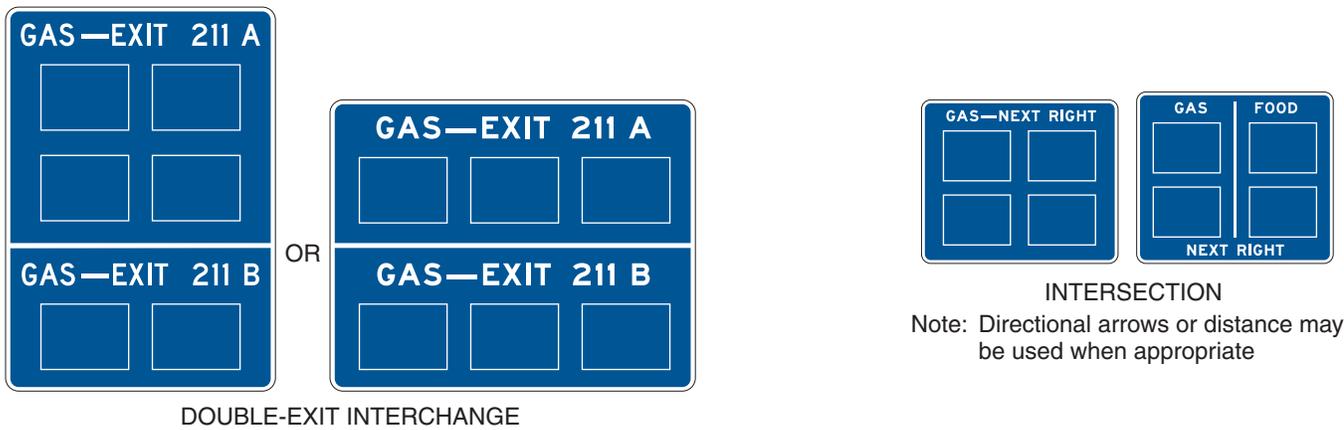
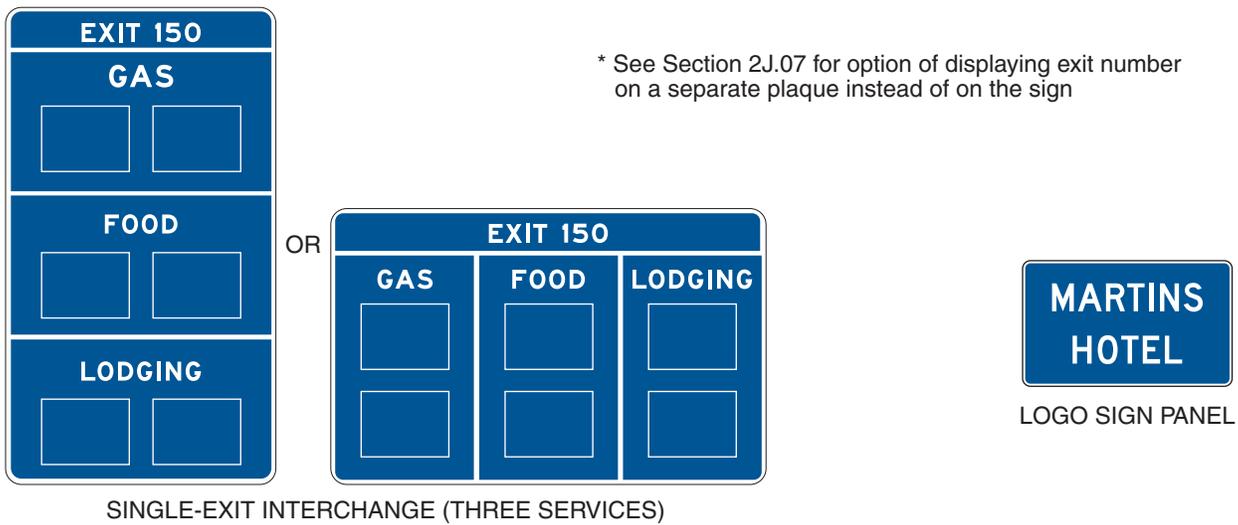
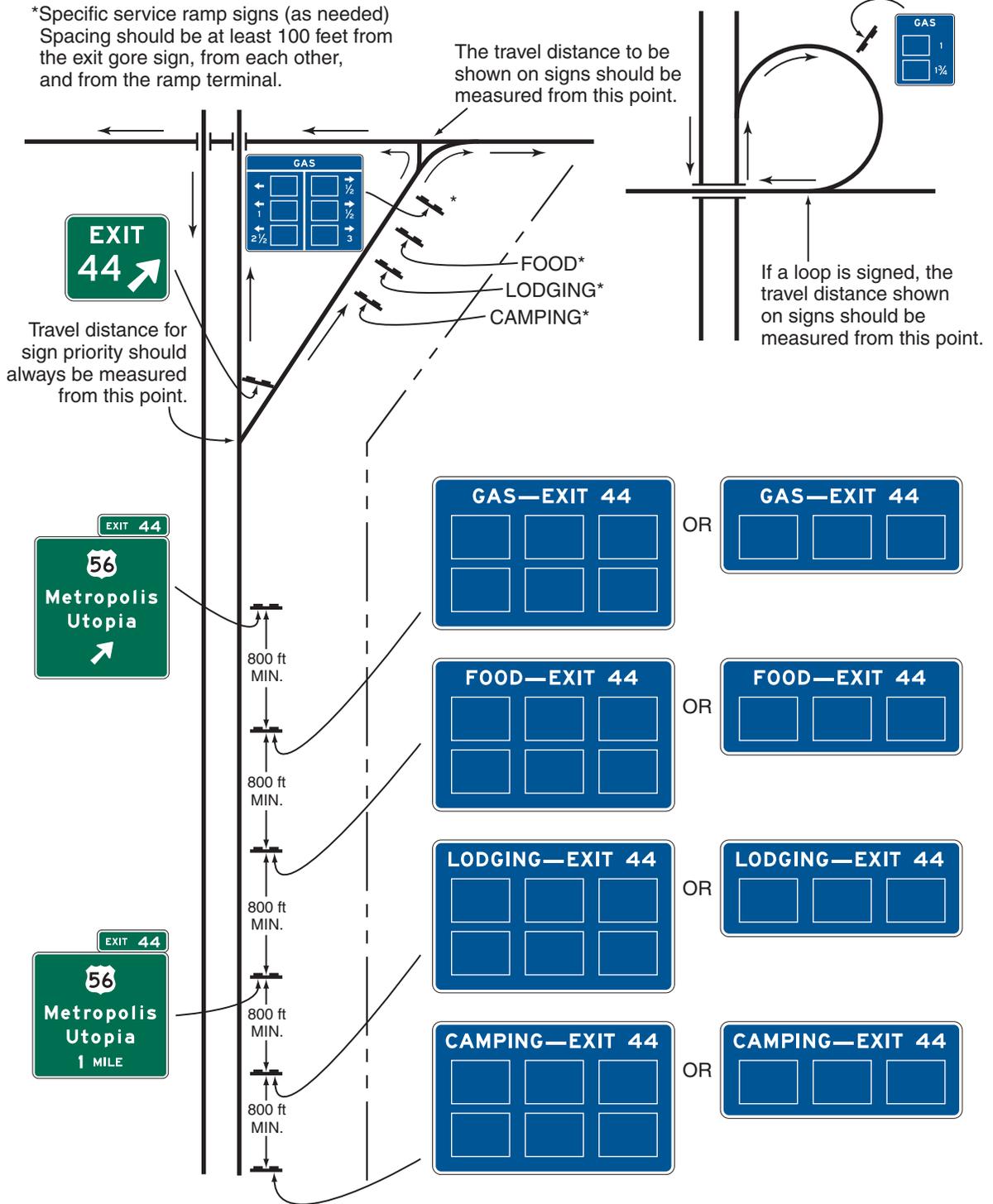


Figure 2J-2. Examples of Specific Service Sign Locations



Guidance:

02 A word message logo, not using a symbol or trademark, should have a blue background with white legend and border.

Support:

03 Section 2J.05 contains information regarding the minimum letter heights for logo sign panels.

Option:

04 Where business identification symbols or trademarks are used alone for a logo, the border may be omitted from the logo sign panel.

05 A portion of a logo sign panel may be used to display a supplemental message horizontally along the bottom of the logo sign panel, provided that the message displays essential motorist information (see Figure 2J-3).

Standard:

06 **All supplemental messages shall be displayed within the logo sign panel and shall have letters and numerals that comply with the minimum height requirements shown in Table 2J-1.**

Guidance:

07 *A logo sign panel should not display more than one supplemental message.*

08 *The supplemental message should be displayed in a color to contrast effectively with the background of the business sign or separated from the other legend or logo by a divider bar.*

09 *State or local agencies that elect to allow supplemental messages on logo sign panels should develop a statewide policy for such messages.*

Support:

10 Typical supplemental messages might include DIESEL, 24 HOURS, CLOSED and the day of the week when the facility is closed, ALTERNATIVE FUELS (see Section 2I.03), and RV ACCESS.

Option:

11 The RV ACCESS supplemental message may be circular.

Standard:

12 **If the RV ACCESS supplemental message is circular, it shall be the abbreviation RV in black letters inside a yellow circle with a black border and it shall be displayed within the logo sign panel near the lower right-hand corner (see Figure 2J-4).**

Guidance:

13 *If the circular RV ACCESS supplemental message is used, the circle should have a diameter of 10 inches and the letters should have a height of 6 inches.*

14 *If a State or local agency elects to display the designation of businesses as providing on-premise accommodations for recreational vehicles with the RV ACCESS supplemental message or the RV Access circular message, there should be a statewide policy for such designation and criteria for qualifying businesses. The criteria should include such site conditions as access between the public roadway and the site, on-premise geometry, and parking.*

Option:

15 If a business designated as an Interstate Oasis (see Section 2I.04) has a business logo sign panel on the Food and/or Gas Specific Service signs, the word OASIS may be displayed on the bottom portion of the logo sign panel for that business.

Standard:

16 **A logo sign panel shall not display the symbol/trademark or name of more than one business.**

Figure 2J-3. Examples of Supplemental Messages on Logo Sign Panels



Table 2J-1. Minimum Letter and Numeral Sizes for Specific Service Signs According to Sign Type

Type of Sign	Freeway or Expressway	Conventional Road or Ramp
A. Specific Service Signs		
Service Categories	10	6
Exit Number Words	10	—
Exit Number Numerals and Letters	10	—
Action Message Words	10	6
Distance Numerals	—	6
Distance Fraction Numerals	—	4
B. Logo Sign Panels		
Logo Sign Panels	60 x 36	30 x 18
Words and Numerals (Non-Trademark/Graphic Logo)	8	4
Trademark/Graphic Logo	Proportional	Proportional
Supplemental Message Words and Numerals	5	2.5

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

Figure 2J-4. Examples of RV Access Supplemental Messages on Logo Sign Panels



Section 2J.04 Number and Size of Signs and Logo Sign Panels

Guidance:

- 01 *Sign sizes should be determined by the amount and height of legend and the number and size of logo sign panels attached to the sign. All logo sign panels on a sign should be the same size.*

Standard:

- 02 **Each Specific Service sign or sign assembly shall be limited to no more than six logo sign panels.**

Option:

- 03 Where more than six businesses of a specific service type are eligible for logo sign panels at the same interchange, additional logo sign panels of that same specific service type may also be displayed in accordance with the provisions of Paragraph 4. The additional logo sign panels may be displayed either by placing more than one specific service type on the same sign (see Paragraph 3 of Section 2J.02) or by using a second Specific Service sign of that specific service type if the additional sign can be added without exceeding the limit of four Specific Service signs at an interchange or intersection approach (see Paragraph 6 of Section 2J.02).

Standard:

- 04 **Where logo sign panels for more than six businesses of a specific service type are displayed at the same interchange or intersection approach, the following provisions shall apply:**

- A. **No more than 12 logo sign panels of a specific service type shall be displayed on no more than two Specific Service signs or sign assemblies;**
- B. **No more than six logo sign panels shall be displayed on a single Specific Service sign; and**
- C. **No more than four Specific Service signs shall be displayed on the approach.**

Support:

- 05 Section 2J.08 contains information regarding Specific Service signs for double-exit interchanges.

Standard:

- 06 **Each logo sign panel attached to a Specific Service sign shall have a rectangular shape with a width longer than the height. A logo sign panel on signs for freeways and expressways shall not exceed 60 inches in width and 36 inches in height. A logo sign panel on signs for conventional roads and freeway and expressway ramps shall not exceed 30 inches in width and 18 inches in height. The vertical and horizontal spacing between logo sign panels shall not exceed 8 inches and 12 inches, respectively.**

Support:

- 07 Sections 2A.14, 2E.15, and 2E.16 contain information regarding borders, interline spacing, and edge spacing.

Section 2J.05 Size of Lettering

Standard:

- 01 **All Specific Service signs and logo sign panels shall have letter and numeral sizes that comply with the minimum requirements of Table 2J-1.**

Guidance:

- 02 *Any legend on a symbol/trademark should be proportional to the size of the symbol/trademark.*

Section 2J.06 Signs at Interchanges

Standard:

- 01 **The Specific Service signs shall be installed between the preceding interchange and at least 800 feet in advance of the Exit Direction sign at the interchange from which the services are available (see Figure 2J-2).**

Guidance:

- 02 *There should be at least an 800-foot 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 100 feet from the Exit Gore sign, from each other, and from the ramp terminal.*

Section 2J.07 Single-Exit Interchanges

Standard:

- 01 **At numbered single-exit interchanges, the name of the service type followed by the exit number shall be displayed on one line above the logo sign panels. At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT) shall be used.**
- 02 **At single-exit interchanges, Specific Service ramp signs shall be installed along the ramp or at the ramp terminal for facilities that have logo sign 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 sign 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 (see Paragraph 6 of Section 2J.04).**

Guidance:

- 03 *Specific Service ramp signs should include distances to the service facilities.*

Option:

- 04 An exit number plaque (see Section 2E.31) may be used instead of the exit number on the signs located in advance of an interchange.

Section 2J.08 Double-Exit Interchanges*Guidance:*

- 01 *At double-exit interchanges, the Specific Service signs should consist of two sections, one for each exit (see Figure 2J-1).*

Standard:

- 02 **At a double-exit interchange, the top section shall display the logo sign panels for the first exit and the bottom section shall display the logo sign panels for the second exit. At numbered interchanges, the name of the service type and the exit number shall be displayed above the logo sign 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 sign panels on the sign (total of both sections) or the sign assembly shall be limited to six.**

Guidance:

- 03 *At a double-exit interchange, where a service type is displayed on two Specific Service signs in accordance with the provisions of Section 2J.04, one of the signs should display the logo sign panels for that service type for the businesses that are accessible from one of the two exits and the other sign should display the logo sign panels for that service type for the businesses that are accessible from the other exit.*

Option:

- 04 At a double-exit interchange where there are four logo sign panels to be displayed for one of the exits and one or two logo sign panels to be displayed for the other exit, the logo sign panels may be arranged in three rows with two logo sign panels per row.
- 05 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 2J.07 may be used at a double-exit interchange.

Section 2J.09 Specific Service Trailblazer Signs*Support:*

- 01 Specific Service trailblazer signs (see Figure 2J-5) are guide signs with one to four logo sign panels that display business identification and directional information for services and for eligible attractions. Specific Service trailblazer signs are installed along crossroads for facilities that have logo sign panels displayed along the main roadway and ramp, and that require additional vehicle maneuvers.

Standard:

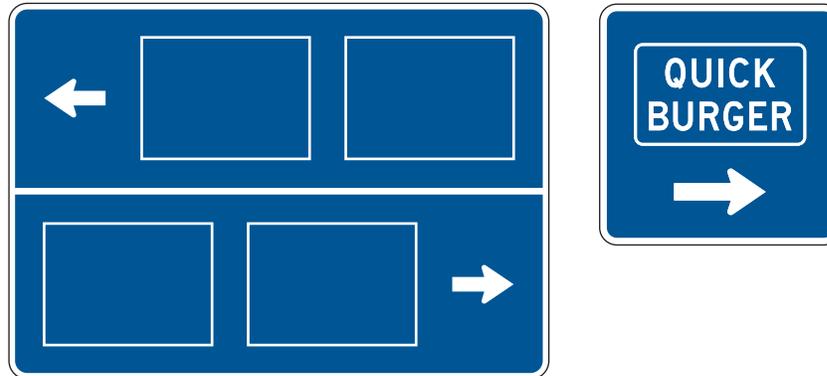
- 02 **Specific Service trailblazer signs shall be installed along crossroads where the route to the business requires a direction change, where it is questionable as to which roadway to follow, or where additional guidance is needed. Where it is not feasible or practical to install Specific Service trailblazer signs to such businesses, those businesses shall not be considered eligible for signing from the ramp and main roadway. A Specific Service trailblazer sign shall not be required at the point where the business is visible from the roadway and its access is readily apparent.**

Guidance:

- 03 *If used, a Specific Service trailblazer sign should be located a maximum of 500 feet in advance of any required turn.*

Standard:

- 04 **The location of other traffic control devices shall take precedence over the location of a Specific Service trailblazer sign.**
- 05 **When used, each Specific Service trailblazer sign or sign assembly shall be limited to no more than four logo sign panels. The logo sign panels on Specific Service trailblazer signs shall be duplicates of those displayed on the Specific Service ramp signs.**
- 06 **Appropriate legends, such as directional arrows or the word message NEXT RIGHT or SECOND RIGHT, shall be displayed with the logo sign panel to provide proper guidance. The directional legend and border shall be white and shall be displayed on a blue background.**

Figure 2J-5. Examples of Specific Service Trailblazer Signs

Option:

- 07 Specific Service trailblazer signs may contain various types of services on a single sign or on a sign assembly.
- 08 Specific Service trailblazer signs may be placed farther from the edge of the road than other traffic control signs.

Section 2J.10 Signs at Intersections

Standard:

- 01 **Where both tourist-oriented information (see Chapter 2K) and specific service information would be needed at the same intersection, the design of the tourist-oriented directional signs shall be used, and the needed specific service information shall be incorporated.**

Guidance:

- 02 *If Specific Service signs are used on conventional roads or at intersections on expressways, they should be installed between the previous interchange or intersection and at least 300 feet in advance of the intersection from which the services are available.*
- 03 *The spacing between signs should be determined on the basis of an engineering study.*
- 04 *Logo sign panels should not be displayed for a type of service for which a qualified facility is readily visible.*

Standard:

- 05 **If Specific Service signs are used on conventional roads or at intersections on expressways, the name of each type of service shall be displayed above its logo sign panel(s), together with an appropriate legend, such as NEXT RIGHT (LEFT) or a directional arrow, either displayed on the same line as the name of the type of service or displayed below the logo sign panel(s).**

Option:

- 06 Signs similar to Specific Service ramp signs as described in Section 2J.07 may be provided on the crossroad.

Section 2J.11 Signing Policy

Guidance:

- 01 *Each highway agency that elects to use Specific Service signs should establish a signing policy that includes, as a minimum, the guidelines of Section 2J.01 and at least the following criteria:*
- A. *Selection of eligible businesses;*
 - B. *Distances to eligible services;*
 - C. *The use of logo sign panels, legends, and signs conforming with this Manual and State design requirements;*
 - D. *Removal or covering of logo sign panels during off seasons for businesses that operate on a seasonal basis;*
 - E. *The circumstances, if any, under which Specific Service signs are permitted to be used in non-rural areas; and*
 - F. *Determination of the costs to businesses for initial permits, installations, annual maintenance, and removal of logo sign panels.*

CHAPTER 2K. TOURIST-ORIENTED DIRECTIONAL SIGNS

Section 2K.01 Purpose and Application

Support:

- 01 Tourist-oriented directional signs are guide signs with one or more sign panels that display the business identification of and directional information for eligible business, service, and activity facilities.

Standard:

- 02 **A facility shall be eligible for tourist-oriented directional signs only if it derives its major portion of income or visitors during the normal business season from road users not residing in the area of the facility.**

Option:

- 03 Tourist-oriented directional signs may include businesses involved with seasonal agricultural products.

Standard:

- 04 **When used, tourist-oriented directional signs shall be used only on rural conventional roads and shall not be used on conventional roads in urban areas or at interchanges on freeways or expressways.**

- 05 **Where both tourist-oriented directional signs and Specific Service signs (see Chapter 2J) would be needed at the same intersection, the tourist-oriented directional signs shall incorporate the needed information from, and be used in place of, the Specific Service signs.**

Option:

- 06 Tourist-oriented directional signs may be used in conjunction with General Service signs (see Section 2I.02).

Support:

- 07 Section 2K.07 contains information on the adoption of a State policy for States that elect to use tourist-oriented directional signs.

Section 2K.02 Design

Standard:

- 01 **Tourist-oriented directional signs shall have one or more sign panels for the purpose of displaying the business identification of and directional information for eligible facilities. Each sign panel shall be rectangular in shape and shall have a white legend and border on a blue background.**

- 02 **The content of the legend on each sign panel shall be limited to the identification and directional information for no more than one eligible business, service, or activity facility. The legends shall not include promotional advertising.**

Guidance:

- 03 *Each sign panel should have a maximum of two lines of legend including no more than one symbol, a separate directional arrow, and the distance to the facility displayed beneath the arrow. Arrows pointing to the left or up should be at the extreme left of the sign panel. Arrows pointing to the right should be at the extreme right of the sign panel. Symbols, when used, should be to the left of the word legend or logo sign panel (see Paragraph 7).*

Option:

- 04 The General Service sign symbols (see Section 2I.02) and the symbols for recreational and cultural interest area signs (see Chapter 2M) may be used.

- 05 Logo sign panels (see Section 2J.03) for specific businesses, services, and activities may also be used. Based on engineering judgment, the hours of operation may be displayed on the sign panels.

Standard:

- 06 **When used, symbols and logo sign panels shall be an appropriate size (see Section 2K.04). Logos resembling official traffic control devices shall not be permitted.**

Option:

- 07 The tourist-oriented directional sign may display the word message TOURIST ACTIVITIES at the top of the sign.

Standard:

- 08 **The TOURIST ACTIVITIES word message shall have a white legend in all upper-case letters and a white border on a blue background. If used, it shall be placed above and in addition to the directional sign panels.**

Support:

- 09 Examples of tourist-oriented directional signs are shown in Figures 2K-1 and 2K-2.

Figure 2K-1. Examples of Tourist-Oriented Directional Signs

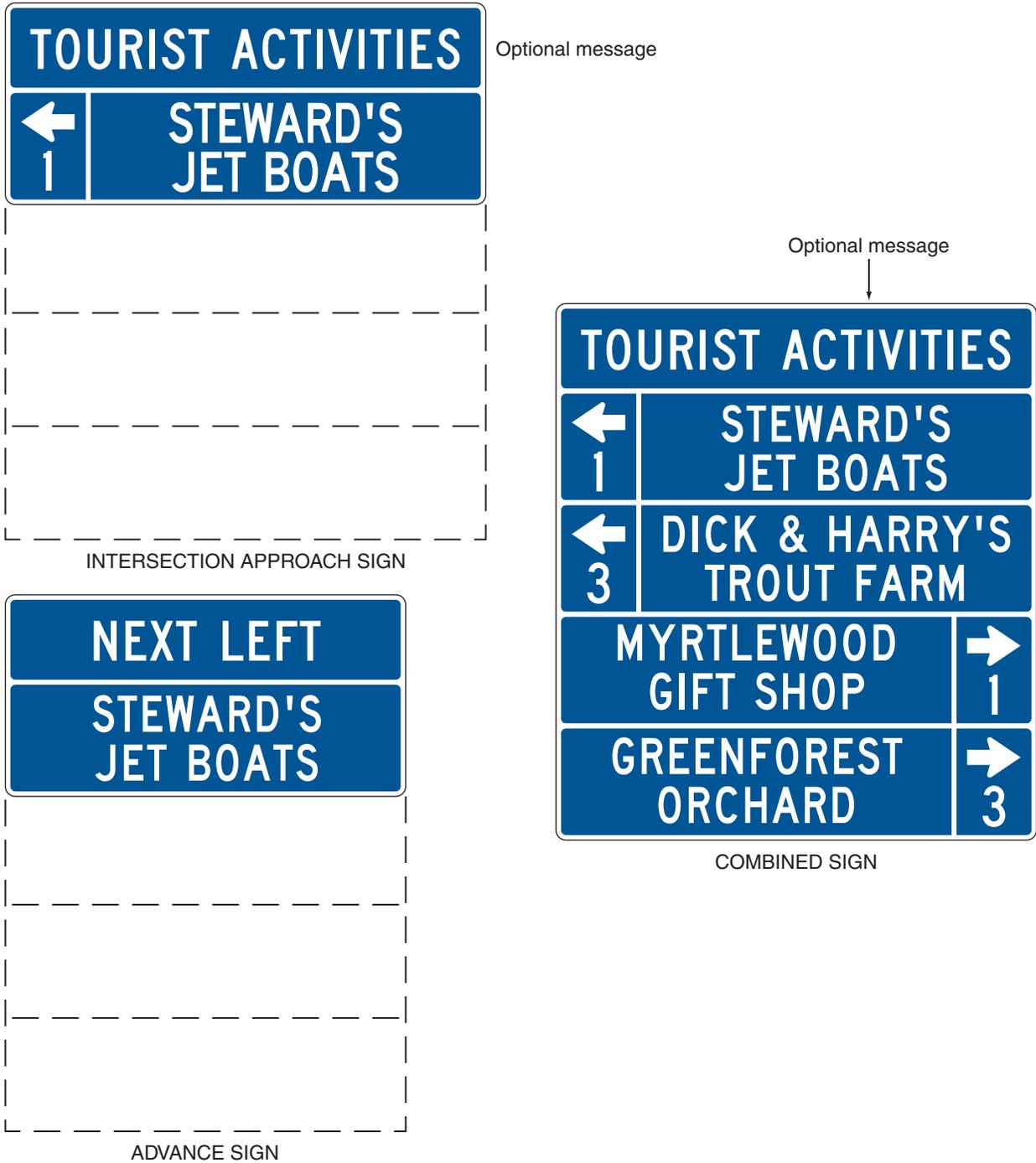
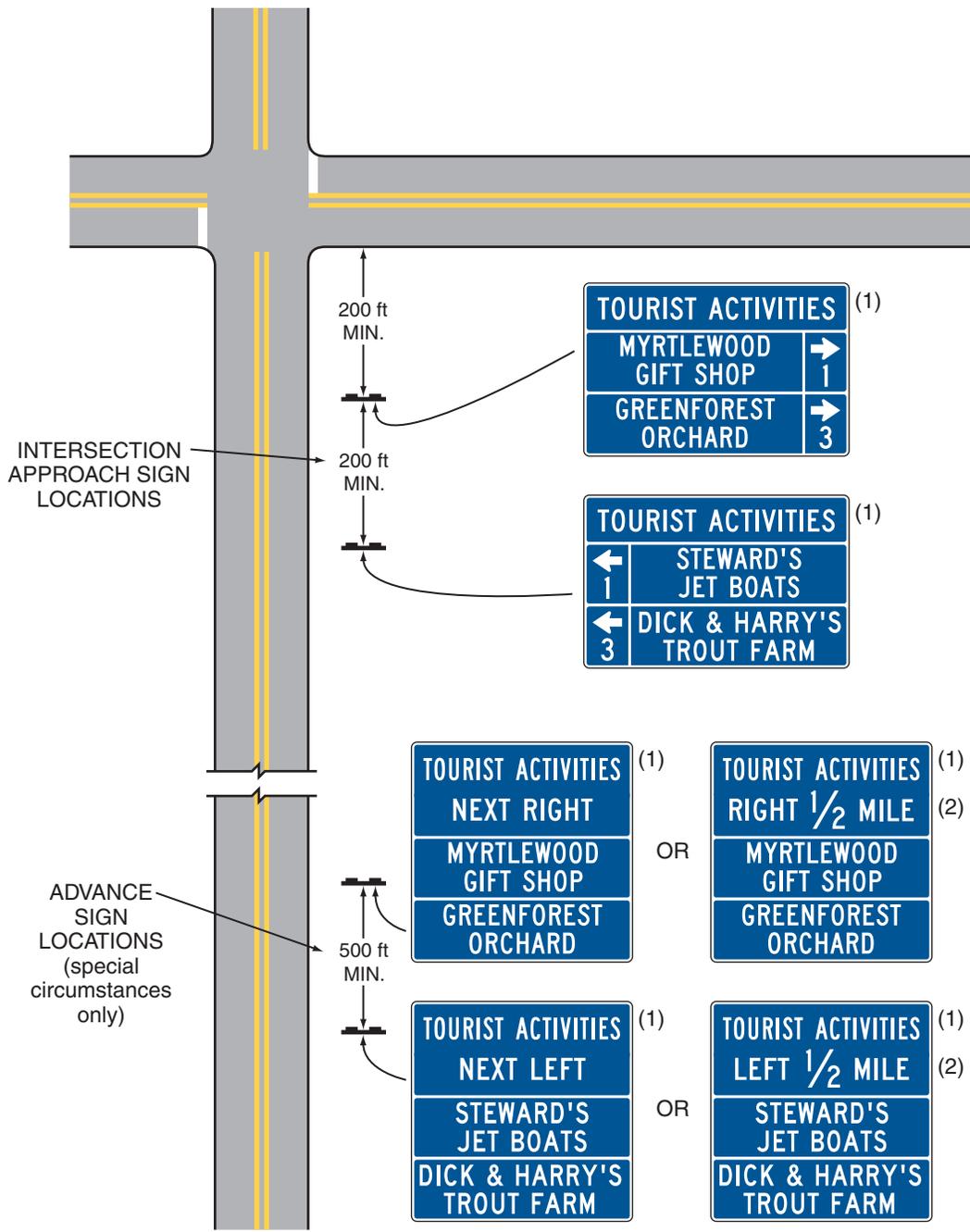


Figure 2K-2. Examples of Intersection Approach Signs and Advance Signs for Tourist-Oriented Directional Signs



- (1) Optional message
- (2) Use if there is an intervening intersection

Section 2K.03 Style and Size of Lettering

Guidance:

- 01 *All letters and numbers on tourist-oriented directional signs, except on the logo sign panels, should be upper-case and at least 6 inches in height. Any legend on a logo should be proportional to the size of the logo.*

Standard:

- 02 **Design standards for letters, numerals, and spacing shall be as provided in the “Standard Highway Signs and Markings” book (see Section 1A.11).**

Section 2K.04 Arrangement and Size of Signs

Standard:

- 01 **The size of a tourist-oriented directional sign shall be limited to a maximum height of 6 feet. Additional height shall be allowed to accommodate the addition of the optional TOURIST ACTIVITIES message provided in Section 2K.02 and the action messages provided in Section 2K.05.**

Guidance:

- 02 *The number of intersection approach signs (one sign for tourist-oriented destinations to the left, one for destinations to the right, and one for destinations straight ahead) installed in advance of an intersection should not exceed three. The number of sign panels installed on each sign should not exceed four. The sign panels for right-turn, left-turn, and straight-through destinations should be on separate signs. The left-turn destination sign should be located farthest from the intersection, then the right-turn destination sign, with the straight-through destination sign located closest to the intersection (see Figure 2K-2). Signs for facilities in the straight-through direction should be considered only when there are signs for destinations in either the left or right direction.*

- 03 *If it has been determined to be appropriate to combine the left-turn and right-turn destination sign panels on a single sign, the left-turn destination sign panels should be above the right-turn destination sign panels (see Figure 2K-1). When there are multiple destinations in the same direction, they should be in order based on their distance from the intersection. Except as provided in Paragraph 5, a straight-through sign panel should not be combined with a sign displaying left- and/or right-turn destinations.*

- 04 *The sign panels should not exceed the size necessary to accommodate two lines of legend without crowding. Symbols and logo sign panels on a directional sign panel should not exceed the height of two lines of a word legend. All directional sign panels and other parts of the sign should be the same width, which should not exceed 6 feet.*

Option:

- 05 *At intersection approaches where three or fewer facilities are displayed, the left-turn, right-turn, and straight-through destination sign panels may be combined on the same sign.*

Section 2K.05 Advance Signs

Guidance:

- 01 *Advance signs should be limited to those situations where sight distance, intersection vehicle maneuvers, or other vehicle operating characteristics require advance notification of the destinations and their directions.*

- 02 *The design of the advance sign should be identical to the design of the intersection approach sign. However, the directional arrows and distances to the destinations should be omitted and the action messages NEXT RIGHT, NEXT LEFT, or AHEAD should be placed on the sign above the business identification sign panels. The action messages should have the same letter height as the other word messages on the directional sign panels (see Figures 2K-1 and 2K-2).*

Standard:

- 03 **The action message sign panels shall have a white legend in all upper-case letters and a white border on a blue background.**

Option:

- 04 *The legend RIGHT 1/2 MILE or LEFT 1/2 MILE may be used on advance signs when there are intervening minor roads.*

- 05 *The height required to add the directional word messages recommended for the advance sign may be added to the maximum sign height of 6 feet.*

Guidance:

- 06 *The optional TOURIST ACTIVITIES message, when used on an advance sign, and the action message should be combined on a single sign panel with TOURIST ACTIVITIES as the top line and the action message as the bottom line (see Figure 2K-2).*

Section 2K.06 Sign Locations

Guidance:

- 01 *If used, the intersection approach signs should be located at least 200 feet in advance of the intersection. Signs should be spaced at least 200 feet apart and at least 200 feet from other traffic control devices.*
- 02 *If used, advance signs should be located approximately 1/2 mile from the intersection with 500 feet between these signs. In the direction of travel, the order of advance sign placement should be to show the destinations to the left first, then destinations to the right, and last, the destinations straight ahead.*
- 03 *Position, height, and lateral offset of signs should be governed by Chapter 2A except as permitted in this Section.*

Option:

- 04 Tourist-oriented directional signs may be placed farther from the edge of the road than other traffic control signs.

Standard:

- 05 **The location of other traffic control devices shall take precedence over the location of tourist-oriented directional signs.**

Section 2K.07 State Policy

Standard:

- 01 **To be eligible for tourist-oriented directional signing, facilities shall comply with applicable State and Federal laws concerning the provisions of public accommodations without regard to race, religion, color, age, sex, or national origin, and with laws concerning the licensing and approval of service facilities. Each State that elects to use tourist-oriented directional signs shall adopt a policy that complies with these provisions.**

Guidance:

- 02 *The State policy should include:*
- A. *A definition of tourist-oriented business, service, and activity facilities.*
 - B. *Eligibility criteria for signs for facilities.*
 - C. *Provision for incorporating Specific Service signs into the tourist-oriented directional signs as required by Paragraph 5 of Section 2K.01.*
 - D. *Provision for covering signs during off seasons for facilities operated on a seasonal basis.*
 - E. *Provisions for signs to facilities that are not located on the crossroad when such facilities are eligible for signs.*
 - F. *A definition of the immediate area in compliance with the provisions of Paragraph 2 of Section 2K.01.*
 - G. *Maximum distances to eligible facilities. The maximum distance should be 5 miles.*
 - H. *Provision for information centers (plazas) when the number of eligible sign applicants exceeds the maximum permissible number of sign panel installations.*
 - I. *Provision for limiting the number of signs when there are more applicants than the maximum number of signs permitted.*
 - J. *Criteria for use at intersections on expressways.*
 - K. *Provisions for controlling or excluding those businesses which have illegal signs as defined by the Highway Beautification Act of 1965 (23 U.S.C. 131).*
 - L. *Provisions for States to charge fees to cover the cost of signs through a permit system.*
 - M. *A definition of the conditions under which the time of operation is displayed.*
 - N. *Provisions for determining if advance signs will be permitted, and the circumstances under which they will be installed.*

CHAPTER 2L. CHANGEABLE MESSAGE SIGNS

Section 2L.01 Description of Changeable Message Signs

Support:

- 01 A changeable message sign (CMS) is a traffic control device that is capable of displaying one or more alternative messages. Some changeable message signs have a blank mode when no message is displayed, while others display multiple messages with only one of the messages displayed at a time (such as OPEN/CLOSED signs at weigh stations).
- 02 The provisions in this Chapter apply to both permanent and portable changeable message signs with electronic displays. Additional provisions that only apply to portable changeable message signs can be found in Section 6F.60. The provisions in this Chapter do not apply to changeable message signs with non-electronic displays that are changed either manually or electromechanically, such as a hinged-panel, rotating-drum, or back-lit curtain or scroll CMS.

Standard:

- 03 **Except as provided in Paragraph 2 of Section 2L.02, changeable message signs shall display only traffic operational, regulatory, warning, and guidance information. Advertising messages shall not be displayed on changeable message signs or its supports or other equipment.**
- 04 **The design of legends for non-electronic display changeable message signs shall comply with the provisions of Chapters 2A through 2K, 2M, and 2N of this Manual. All other changeable message signs shall comply with the design and application principles established in this Chapter and in Chapter 2A.**

Guidance:

- 05 *Blank-out signs that display only single-phase, predetermined electronic-display legends that are limited by their composition and arrangement of pixels or other illuminated forms in a fixed arrangement (such as a blank-out sign indicating a part-time turn prohibition, a blank-out or changeable lane-use sign, or a changeable OPEN/CLOSED sign for a weigh station) should comply with the provisions of the applicable Section for the specific type of sign, provided that the letter forms, symbols, and other legend elements are duplicates of the static messages as detailed in the "Standard Highway Signs and Markings" book (see Section 1A.11). Because such a sign is effectively an illuminated version of a static sign, the size of its legend elements, the overall size of the sign, and placement of the sign should comply with the applicable provisions for the static version of the sign.*

Section 2L.02 Applications of Changeable Message Signs

Support:

- 01 Changeable message signs have a large number of applications including, but not limited to, the following:
- A. Incident management and route diversion
 - B. Warning of adverse weather conditions
 - C. Special event applications associated with traffic control or conditions
 - D. Control at crossing situations
 - E. Lane, ramp, and roadway control
 - F. Priced or other types of managed lanes
 - G. Travel times
 - H. Warning situations
 - I. Traffic regulations
 - J. Speed control
 - K. Destination guidance

Option:

- 02 Changeable message signs may be used by State and local highway agencies to display safety messages, transportation-related messages, emergency homeland security messages, and America's Missing: Broadcast Emergency Response (AMBER) alert messages.

Guidance:

- 03 *State and local highway agencies should develop and establish a policy regarding the display of the types of messages provided in Paragraph 2. When changeable message signs are used at multiple locations to address a specific situation, the message displays should be consistent along the roadway corridor and adjacent corridors, which might necessitate coordination among different operating agencies.*

Support:

- 04 Examples of safety messages include “SEAT BELT 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:

- 05 *When a CMS is used to display a safety or transportation related message, the message should be simple, brief, legible, and clear. A CMS should not be used to display a safety or transportation-related message if doing so would adversely affect 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, delay and travel time, alternative route, or other similar messages.*

Standard:

- 06 **When a CMS is used to display a safety, transportation-related, emergency homeland security, or AMBER alert message, the display format shall not be of a type that could be considered similar to advertising displays.**

Support:

- 07 Section 2B.13 contains information regarding the design of changeable message signs that are used to display variable speed limits that change based on ambient or operational conditions, or that display the speed at which approaching drivers are traveling.

Section 2L.03 Legibility and Visibility of Changeable Message Signs**Support:**

- 01 The maximum distance at which a driver can first correctly identify letters and words on a sign is called the legibility distance of the sign. Legibility distance is affected by the characteristics of the sign design and the visual capabilities of drivers. Visual capabilities, and thus legibility distances, vary among drivers.
- 02 For the more common types of changeable message signs, the longest measured legibility distances on sunny days occur during mid-day when the sun is overhead. Legibility distances are much shorter when the sun is behind the sign face, when the sun is on the horizon and shining on the sign face, or at night.
- 03 Visibility is the characteristic that enables a CMS to be seen. Visibility is associated with the point where the CMS is first detected, whereas legibility is the point where the message on the CMS can be read. Environmental conditions such as rain, fog, and snow impact the visibility of changeable message signs and can reduce the available legibility distances. During these conditions, there might not be enough viewing time for drivers to read the message.

Guidance:

- 04 *Changeable message signs used on roadways with speed limits of 55 mph or higher should be visible from 1/2 mile under both day and night conditions. The message should be designed to be legible from a minimum distance of 600 feet for nighttime conditions and 800 feet for normal daylight conditions. When environmental conditions that reduce visibility and legibility are present, or when the legibility distances stated in the previous sentences in this paragraph cannot be practically achieved, messages composed of fewer units of information should be used and consideration should be given to limiting the message to a single phase (see Section 2L.05 for information regarding the lengths of messages displayed on changeable message signs).*

Section 2L.04 Design Characteristics of Changeable Message Signs**Standard:**

- 01 **Changeable message signs shall not include advertising, animation, rapid flashing, dissolving, exploding, scrolling, or other dynamic elements.**

Support:

- 02 Section 6F.61 contains information regarding the use of arrow boards that use flashing or sequential displays for lane closures.

Guidance:

- 03 *Except in the case of a limited-legend CMS (such as a blank-out or electronic-display changeable message regulatory sign) that is used in place of a static regulatory sign or an activated blank-out warning sign that supplements a static warning sign at a separate location, changeable message signs should be used as a supplement to and not as a substitute for conventional signs and markings.*
- 04 *CMS should be limited to no more than three lines, with no more than 20 characters per line.*

05 *The spacing between characters in a word should be between 25 to 40 percent of the letter height. The spacing between words in a message should be between 75 and 100 percent of the letter height. Spacing between the message lines should be between 50 and 75 percent of the letter height.*

06 *Except as provided in Paragraph 18, word messages on changeable message signs should be composed of all upper-case letters. The minimum letter height should be 18 inches for changeable message signs on roadways with speed limits of 45 mph or higher. The minimum letter height should be 12 inches for changeable message signs on roadways with speed limits of less than 45 mph.*

Support:

07 Using letter heights of more than 18 inches will not result in proportional increases in legibility distance.

Guidance:

08 *The width-to-height ratio of the sign characters should be between 0.7 and 1.0. The stroke width-to-height ratio should be 0.2.*

Support:

09 The width-to-height ratio is commonly accomplished using a minimum font matrix density of five pixels wide by seven pixels high.

Standard:

10 **Changeable message signs shall automatically adjust their brightness under varying light conditions to maintain legibility.**

Guidance:

11 *The luminance of changeable message signs should meet industry criteria for daytime and nighttime conditions. Luminance contrast should be between 8 and 12 for all conditions.*

12 *Contrast orientation of changeable message signs should always be positive, that is, with luminous characters on a dark or less luminous background.*

Support:

13 Legibility distances for negative-contrast changeable message signs are likely to be at least 25 percent shorter than those of positive-contrast messages. In addition, the increased light emitted by negative-contrast changeable message signs has not been shown to improve detection distances.

Standard:

14 **The colors used for the legends and backgrounds on changeable message signs shall be as provided in Table 2A-5.**

Guidance:

15 *If a black background is used, the color used for the legend on a changeable message sign should match the background color that would be used on a standard sign for that type of legend, such as white for regulatory, yellow for warning, orange for temporary traffic control, red for stop or yield, fluorescent pink for incident management, and fluorescent yellow-green for bicycle, pedestrian, and school warning.*

Standard:

16 **If a green background is used for a guide message on a CMS or if a blue background is used for a motorist services message on a CMS, the background color shall be provided by green or blue lighted pixels such that the entire CMS would be lighted, not just the white legend.**

Support:

17 Some CMS that employ newer technologies have the capability to display an exact duplicate of a standard sign or other sign legend using standard symbols, the Standard Alphabets and letter forms, route shields, and other typical sign legend elements with no apparent loss of resolution or recognition to the road user when compared with a static version of the same sign legend. Such signs are of the full-matrix type and can typically display full-color legends. Use of such technologies for new CMS is encouraged for greater legibility of their displays and enhanced recognition of the message as it pertains to regulatory, warning, or guidance information.

Guidance:

18 *If used, the CMS described in the preceding paragraph should not display symbols or route shields unless they can do so in the appropriate color combinations. For a single-phase message where the Standard Alphabets and other legend elements of standard designs are used, the lettering style, size, and line spacing should comply with the applicable provisions for the type of message displayed as provided elsewhere in this Manual. For two-phase messages, larger legend heights should be used as described previously in this Section because of the need for such messages to be legible at a greater distance. Regardless of the number of phases, the CMS should comply with the legibility and visibility provisions of Section 2L.03.*

Section 2L.05 Message Length and Units of Information

Guidance:

- 01 *The maximum length of a message should be dictated by the number of units of information contained in the message, in addition to the size of the CMS. A unit of information, which is a single answer to a single question that a driver can use to make a decision, should not be more than four words.*

Support:

- 02 In order to illustrate the concept of units of information, Table 2L-1 shows an example message that is comprised of four units of information.
- 03 The maximum allowable number of units of information in a CMS message is based on the principles described in this Section, the current highway operating speed, the legibility characteristics of the CMS, and the lighting conditions.

Standard:

- 04 **Each message shall consist of no more than two phases. A phase shall consist of no more than three lines of text. Each phase shall be understood by itself regardless of the sequence in which it is read. Messages shall be centered within each line of legend. Except for signs located on toll plaza structures or other facilities with a similar booth-lane arrangement, if more than one CMS is visible to road users, then only one sign shall display a sequential message at any given time.**
- 05 **Techniques of message display such as fading, rapid flashing, exploding, dissolving, or moving messages shall not be used. The text of the message shall not scroll or travel horizontally or vertically across the face of the sign.**

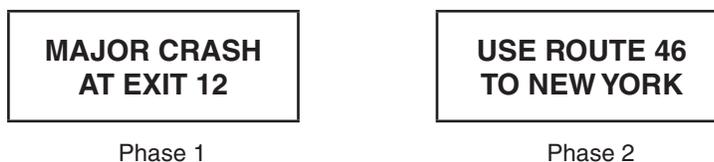
Guidance:

- 06 *When designing and displaying messages on changeable message signs, the following principles relative to message design should be used:*
- The minimum time that an individual phase is displayed should be based on 1 second per word or 2 seconds per unit of information, whichever produces a lesser value. The display time for a phase should never be less than 2 seconds.*
 - The maximum cycle time of a two-phase message should be 8 seconds.*
 - The duration between the display of two phases should not exceed 0.3 seconds.*
 - No more than three units of information should be displayed on a phase of a message.*
 - No more than four units of information should be in a message when the traffic operating speeds are 35 mph or more.*
 - No more than five units of information should be in a message when the traffic operating speeds are less than 35 mph.*
 - Only one unit of information should appear on each line of the CMS.*
 - Compatible units of information should be displayed on the same message phase.*

Table 2L-1. Example of Units of Information

Question	Answer	Number of Information Units
What happened?	MAJOR CRASH	1
Where?	AT EXIT 12	1
Who is the advisory for?	Drivers Heading TO NEW YORK	1
What is advised?	USE ROUTE 46	1

Note: The following is an example of a two-phase message that could be developed from the four information units shown in this table:



Option:

- 07 A unit of information consisting of more than one word may be displayed on more than one line. An additional changeable message sign at a downstream location may be used for the purpose of allowing the entire message to be read twice.

Guidance:

- 08 *If more than two phases would be needed to display the necessary information, additional changeable message signs should be used to display this information as a series of two distinct, independent messages with a maximum of two phases at each location, in accordance with the provisions of Paragraph 4.*
- 09 *When the message on a CMS includes an abbreviation, the provisions of Section 1A.15 should be used.*

Section 2L.06 Installation of Permanent Changeable Message Signs**Guidance:**

- 01 A CMS that is used in place of a static sign (such as a blank-out or variable legend regulatory sign) should be located in accordance with the provisions of Chapter 2A. The following factors should be considered when installing other permanent changeable message signs:
- A. *Changeable message signs should be located sufficiently upstream of known bottlenecks and high crash locations to enable road users to select an alternate route or take other appropriate action in response to a recurring condition.*
 - B. *Changeable message signs should be located sufficiently upstream of major diversion decision points, such as interchanges, to provide adequate distance over which road users can change lanes to reach one destination or the other.*
 - C. *Changeable message signs should not be located within an interchange except for toll plazas or managed lanes.*
 - D. *Changeable message signs should not be positioned at locations where the information load on drivers is already high because of guide signs and other types of information.*
 - E. *Changeable message signs should not be located in areas where drivers frequently perform lane-changing maneuvers in response to static guide sign information, or because of merging or weaving conditions.*

Support:

- 02 Information regarding the design and application of portable changeable message signs in temporary traffic control zones is contained in Section 6F.60.

CHAPTER 2M. RECREATIONAL AND CULTURAL INTEREST AREA SIGNS

Section 2M.01 Scope

Support:

- 01 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.
- 02 The purpose of recreation and cultural interest area signs is to guide road users to a general area and then to specific facilities or activities within the area.

Option:

- 03 Recreational and cultural interest area guide signs directing road users to significant traffic generators may be used on freeways and expressways where there is direct access to these areas as provided in Section 2M.09.
- 04 Recreational and cultural interest area signs may be used off the road network, as appropriate.

Section 2M.02 Application of Recreational and Cultural Interest Area Signs

Support:

- 01 Provisions for signing recreational or cultural interest areas are subdivided into two different types of signs: (1) symbol signs and (2) destination guide signs.

Guidance:

- 02 *When highway agencies decide to provide recreational and cultural interest area signing, these agencies should have a policy for such signing. The policy should establish signing criteria for the eligibility of the various types of services, accommodations, and facilities. These signs should not be used where they might be confused with other traffic control signs.*

Option:

- 03 Recreational and cultural interest area guide signs may be used on any road to direct persons to facilities, structures, and places, and to identify various services available to the general public. These guide signs may also be used in recreational or cultural interest areas for signing non-vehicular events and amenities such as trails, structures, and facilities.

Support:

- 04 Section 2A.12 contains information regarding the use of recreational and cultural interest area symbols on other types of signs.

Section 2M.03 Regulatory and Warning Signs

Standard:

- 01 **All regulatory and warning signs installed on public roads and streets within recreational and cultural interest areas shall comply with the requirements of Chapters 2A, 2B, 2C, 7B, 8B, and 9B.**

Section 2M.04 General Design Requirements for Recreational and Cultural Interest Area Symbol Guide Signs

Standard:

- 01 **Recreational and cultural interest area symbol guide signs shall be square or rectangular in shape and shall have a white symbol or message and white border on a brown background. The symbols shall be grouped into the following usage and series categories:**

- A. General Applications,**
- B. Accommodations,**
- C. Services,**
- D. Land Recreation,**
- E. Water Recreation, and**
- F. Winter Recreation.**

Support:

- 02 Table 2M-1 contains a listing of the symbols within each series category. Drawings showing the design details for these symbols are found in the "Standard Highway Signs and Markings" book (see Section 1A.11).

Option:

- 03 Mirror images of symbols may be used where the reverse image will better convey the message.

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

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

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

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

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

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

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

* For non-road use only

Section 2M.05 Symbol Sign Sizes

Guidance:

- 01 *Recreational and cultural interest area symbol signs should be 24 x 24 inches. Where greater visibility or emphasis is needed, larger sizes should be used. Symbol sign enlargements should be in 6-inch increments.*
- 02 *Recreational and cultural interest area symbol signs should be 30 x 30 inches when used on guide signs on freeways or expressways.*

Option:

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

Section 2M.06 Use of Educational Plaques

Guidance:

- 01 *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:

- 02 Symbol signs that are readily recognizable by the public may be installed without educational plaques.

Support:

- 03 Figure 2M-1 illustrates some examples of the use of educational plaques.

Section 2M.07 Use of Prohibitive Circle and Diagonal Slash for Non-Road Applications

Standard:

- 01 **Where it is necessary to indicate a prohibition of an activity or an item within a recreational or cultural interest area for non-road use and a standard regulatory sign for such a prohibition is not provided in Chapter 2B, the appropriate recreational and cultural interest area symbol shall be used in combination with a red prohibitive circle and red diagonal slash. The recreational and cultural interest area symbol and the sign border shall be black and the sign background shall be white. The symbol shall be scaled proportionally to fit completely within the circle and the diagonal slash shall be oriented from the upper left to the lower right portions of the circle as shown in Figure 2M-1.**
- 02 **Requirements for retroreflection of the red circle and red diagonal slash shall be the same as those requirements for backgrounds, legends, symbols, arrows, and borders.**

Section 2M.08 Placement of Recreational and Cultural Interest Area Symbol Signs

Standard:

- 01 **If used, recreational and cultural interest area symbol signs shall be placed in accordance with the general requirements contained in Chapter 2A. The symbol(s) shall be placed as sign panels in the uppermost part of the sign and the directional information shall be placed below the symbol(s).**
- 02 **Except as provided in Paragraph 3, if the name of the recreational or cultural interest area facility or activity is displayed on a destination guide sign (see Section 2M.09) and a symbol is used, the symbol shall be placed below the name (see Figure 2M-2).**

Option:

- 03 When the legend Wildlife Viewing Area is displayed with the RS-076 symbol on a destination guide sign, the symbol may be placed to the left or right of the legend and the arrow may be placed below the symbol (see Figure 2M-2).
- 04 The symbols displayed with the facility or activity name may be placed below the destination guide sign as illustrated in Figure 2M-2 instead of as sign panels placed with the destination guide sign.
- 05 Secondary symbols of a smaller size (18 x 18 inches) may be placed beneath the primary symbols (see Drawing A in Figure 2M-1), where needed.

Standard:

- 06 **Recreational and cultural interest area symbols installed for non-road use shall be placed in accordance with the general sign position requirements of the authority having jurisdiction.**

Support:

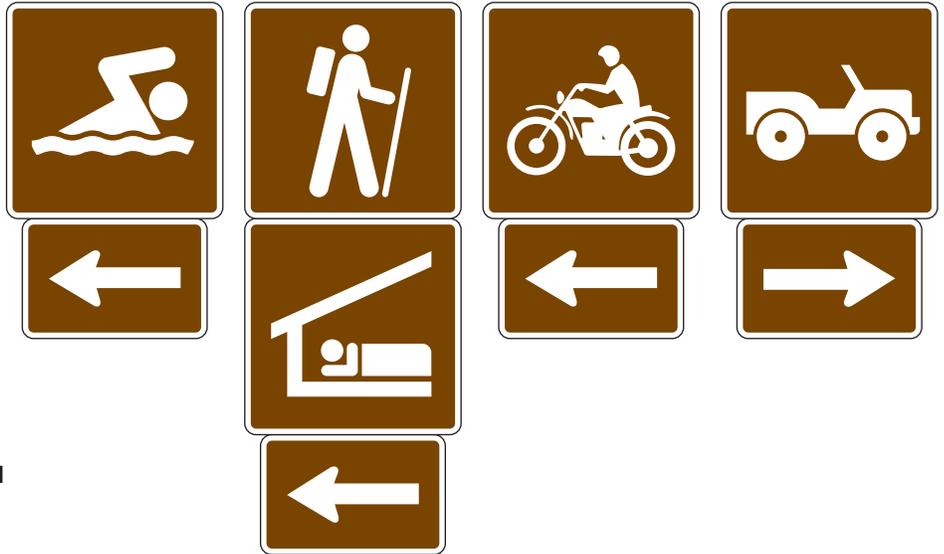
- 07 Figure 2M-3 illustrates typical height and lateral mounting positions. Figure 2M-4 illustrates some examples of the placement of symbol signs within a recreational or cultural interest area. Figures 2M-5 through 2M-10 illustrate some of the symbols that can be used.

Figure 2M-1. Examples of Use of Arrows, Educational Plaques, and Prohibitive Slashes

A - DIRECTIONAL SIGNS



B - DIRECTIONAL ASSEMBLIES



C - DIRECTIONAL ASSEMBLY WITH EDUCATIONAL PLAQUE



D - PROHIBITED ACTIVITIES AND EDUCATIONAL PLAQUE FOR NON-ROAD USE*



* Standard regulatory signs shall be used where provided elsewhere in this Manual

Guidance:

08 The number of symbols used in a single sign assembly should not exceed four.

Option:

09 The Advance Turn (M5 series) or Directional Arrow (M6 series) auxiliary signs with white arrows on brown backgrounds shown in Figure 2D-5 may be used with Recreational and Cultural Area Interest symbol guide signs to create a Recreational and Cultural Interest Area Directional Assembly. The symbols may be used singularly, or in groups of two, three, or four on a single sign assembly (see Figures 2M-1, 2M-3, and 2M-4).

Section 2M.09 Destination Guide Signs

Guidance:

01 When recreational or cultural interest area destinations are displayed 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.

Standard:

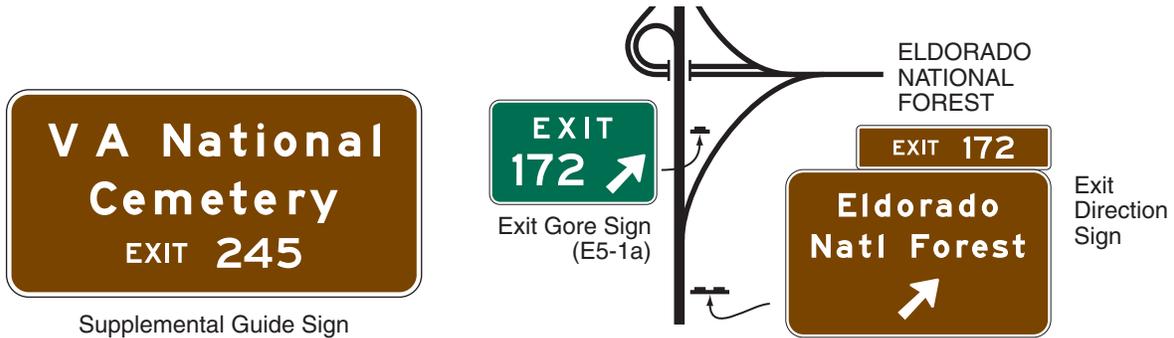
02 Whenever the trapezoidal shape is used, the color combination shall be a white legend and border on a brown background.

Figure 2M-2. Examples of Recreational and Cultural Interest Area Guide Signs



* Optional shape

B - EXPRESSWAYS AND FREEWAYS



Option:

03 Destination guide signs with a white legend and border on a brown background 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. Supplemental guide signs with a white legend and border on a brown background 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 have a white legend and border on a brown background.

Standard:

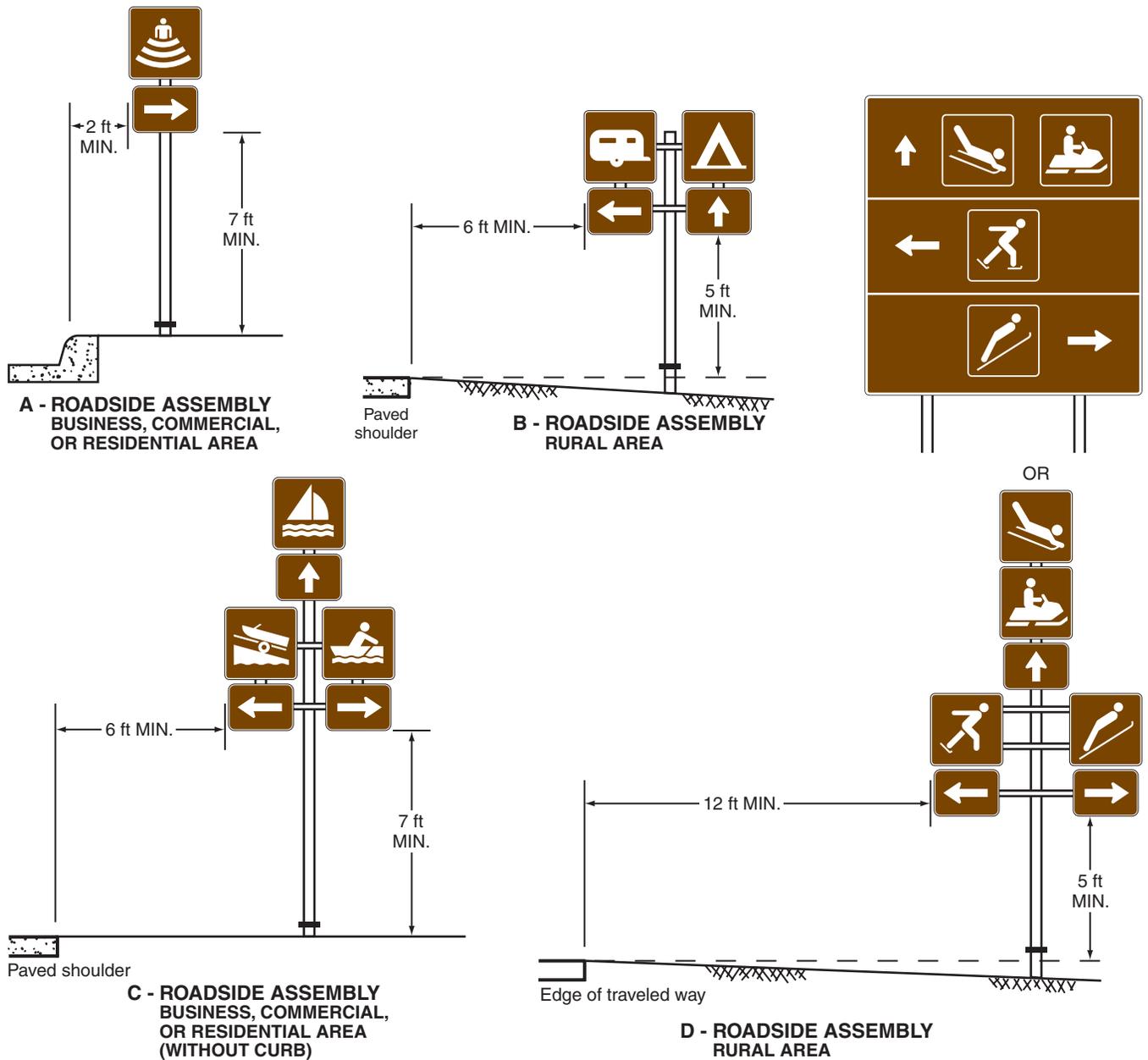
04 All Exit Gore (E5-1 and E5-1a) signs (see Section 2E.37) shall have a white legend and border on a green background. The background color of the interchange Exit Number (E1-5P and E1-5bP) plaque (see Section 2E.31) shall match the background color of the guide sign. Design characteristics of conventional road, expressway, or freeway guide signs shall comply with Chapter 2D or 2E except as provided in this Section for color combination.

05 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:

06 Figure 2M-2 illustrates destination guide signs commonly used for identifying recreational or cultural interest areas or facilities.

Figure 2M-3. Arrangement, 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 2M-4. Examples of Symbol and Destination Guide Signing Layout

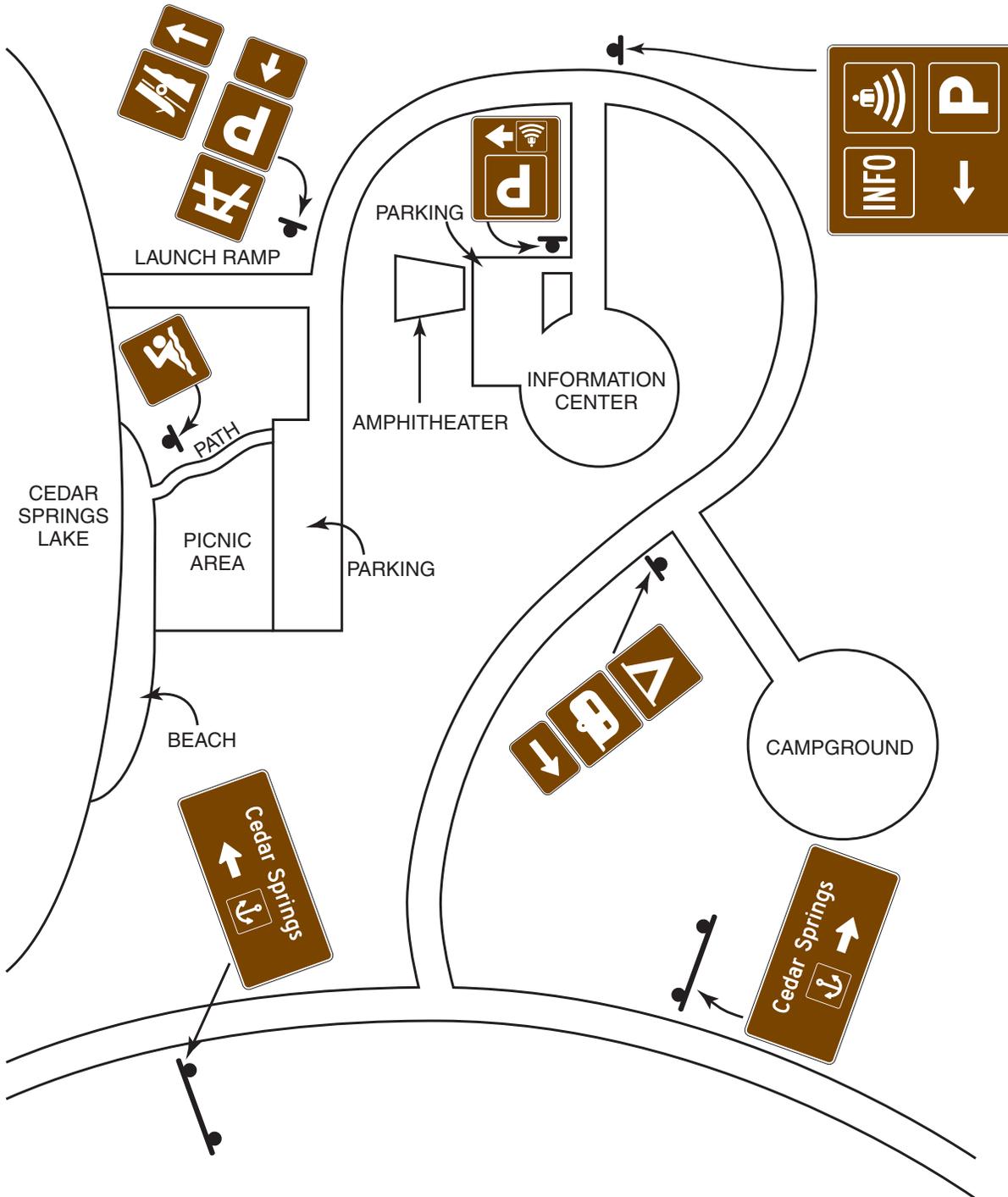


Figure 2M-5. Recreational and Cultural Interest Area Symbol Signs for General Applications



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

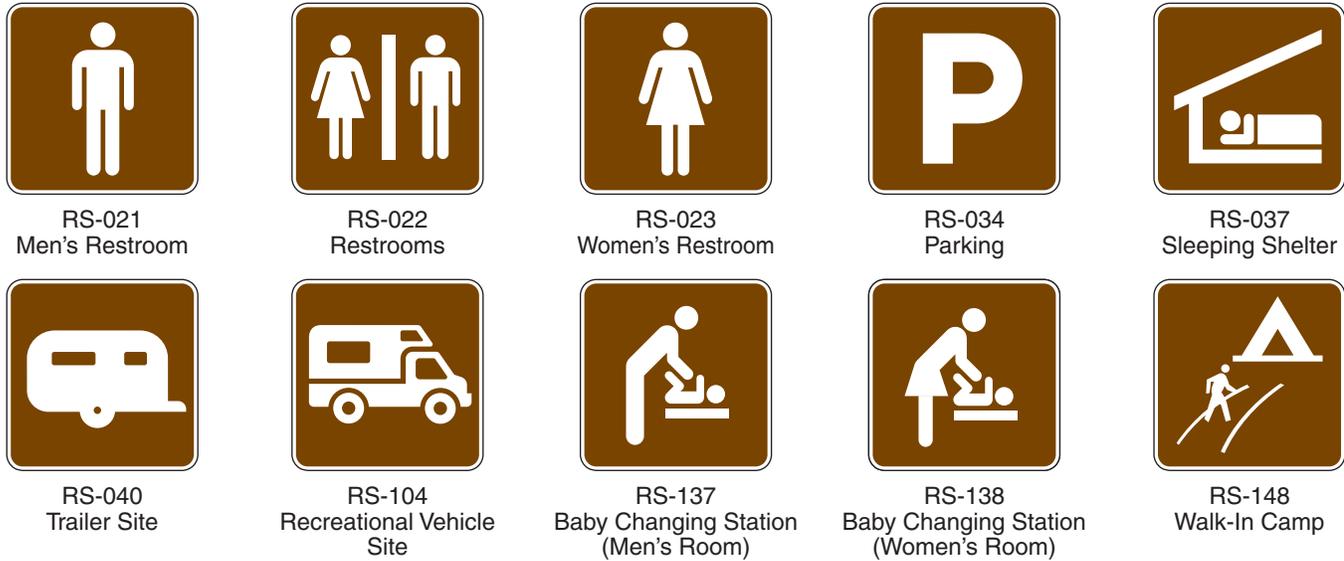


Figure 2M-7. Recreational and Cultural Interest Area Symbol Signs for Services



Figure 2M-8. Recreational and Cultural Interest Area Symbol Signs for Land Recreation**Section 2M.10 Memorial or Dedication Signing**

Support:

- 01 Legislative bodies will occasionally adopt an act or resolution memorializing or dedicating a highway, bridge, or other component of the highway.

Guidance:

- 02 *Such memorial or dedication names should not appear on or along a highway, or be placed on bridges or other highway components. If a route, bridge, or highway component is officially designated as a memorial or dedication, and if notification of the memorial or dedication is to be made on the highway right-of-way, such notification should consist of installing a memorial or dedication marker 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:

- 03 If the installation of a memorial or dedication marker off the main roadway is not practical, memorial or dedication signs may be installed on the mainline.

Guidance:

- 04 *Memorial or dedication signs should have a white legend and border on a brown background.*

Figure 2M-9. Recreational and Cultural Interest Area Symbol Signs for Water Recreation



Figure 2M-10. Recreational and Cultural Interest Area Symbol Signs for Winter Recreation**Standard:**

- 05 Where such memorial or dedication signs are installed on the mainline, (1) memorial or dedication names shall not appear on directional guide signs, (2) memorial or dedication signs shall not interfere with the placement of any other necessary signing, and (3) memorial or dedication signs shall not compromise the safety or efficiency of traffic flow. The memorial or dedication signing shall be limited to one sign at an appropriate location in each route direction, each as an independent sign installation.
- 06 Memorial or dedication signs shall be rectangular in shape. The legend displayed on memorial or dedication signs shall be limited to the name of the person or entity being recognized and a simple message preceding or following the name, such as “Dedicated to” or “Memorial Parkway.” Additional legend, such as biographical information, shall not be displayed on memorial or dedication signs. Decorative or graphical elements, pictographs, logos, or symbols shall not be displayed on memorial or dedication signs. All letters and numerals displayed on memorial or dedication signs shall be as provided in the “Standard Highway Signs and Markings” book (see Section 1A.11). The route number or officially mapped name of the highway shall not be displayed on the memorial or dedication sign.
- 07 Memorial or dedication names shall not appear on supplemental signs or on any other information sign on or along the highway or its intersecting routes.

Option:

- 08 The lettering for the name of the person or entity being recognized may be composed of a combination of lower-case letters with initial upper-case letters.

Guidance:

- 09 *Freeways and expressways should not be signed as memorial or dedicated highways.*

Support:

- 10 Named highways are officially designated and shown on official maps and serve the purpose of providing route guidance, primarily on unnumbered highways. A highway designated as a memorial or dedication is not considered to be a named highway. Section 2D.53 contains provisions for the signing of named highways.

CHAPTER 2N. EMERGENCY MANAGEMENT SIGNING

Section 2N.01 Emergency Management

Guidance:

- 01 *Contingency planning for an emergency evacuation should be considered by all State and local jurisdictions and should consider the use of all applicable roadways.*
- 02 *In the event of a disaster where highways that cannot be used will be closed, a successful contingency plan should account for the following elements: a controlled operation of certain designated highways, the establishment of traffic operations for the expediting of essential traffic, and the provision of emergency centers for civilian aid.*

Section 2N.02 Design of Emergency Management Signs

Standard:

- 01 **Emergency Management signs shall be used to guide and control highway traffic during an emergency.**
- 02 **Emergency Management signs shall not permanently displace any of the standard signs that are normally applicable.**
- 03 **Advance planning for transportation operations' emergencies shall be the responsibility of State and local authorities. The Federal Government shall provide guidance to the States as necessitated by changing circumstances.**
- 04 **Except as provided in Section 2A.11, the sizes for Emergency Management signs shall be as shown in Table 2N-1.**

Support:

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

Option:

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

Guidance:

- 07 *As conditions permit, the Emergency Management signs should be replaced or augmented by standard signs.*
- 08 *The background of Emergency Management signs should be retroreflective.*
- 09 *Because Emergency Management signs might be needed in large numbers for temporary use during an emergency, consideration should be given to their fabrication from any light and economical material that can serve through the emergency period.*

Option:

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

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

Standard:

- 01 **The Evacuation Route (EM-1 and EM-1a) signs shall display a blue circular symbol on a white square sign without a border as shown in Figure 2N-1. The EM-1 sign shall include a white directional arrow (except as provided in Paragraph 3) and a white legend EVACUATION ROUTE within the blue circular symbol. The EM-1a sign shall include a white EVACUATION ROUTE legend and the tsunami symbol within the blue circular symbol. The EM-1 and EM-1a signs shall be retroreflective.**
- 02 **An Advance Turn Arrow (M5 series) or Directional Arrow (M6 series) auxiliary sign as shown in Figure 2D-5, but with a white arrow on a blue background instead of a black arrow on a white background, shall be installed below the EM-1a sign.**

Option:

- 03 Instead of including a directional arrow within the blue circular symbol on the EM-1 sign, an Advance Turn Arrow (M5 series) or Directional Arrow (M6 series) auxiliary sign as shown in Figure 2D-5, but with a white arrow on a blue background instead of a black arrow on a white background, may be installed below the EM-1 sign.
- 04 If desired, the word HURRICANE, or a word that describes some other type of evacuation route, may be added as a third line of text above the white EVACUATION ROUTE legend within the blue circular symbol on the EM-1 sign.

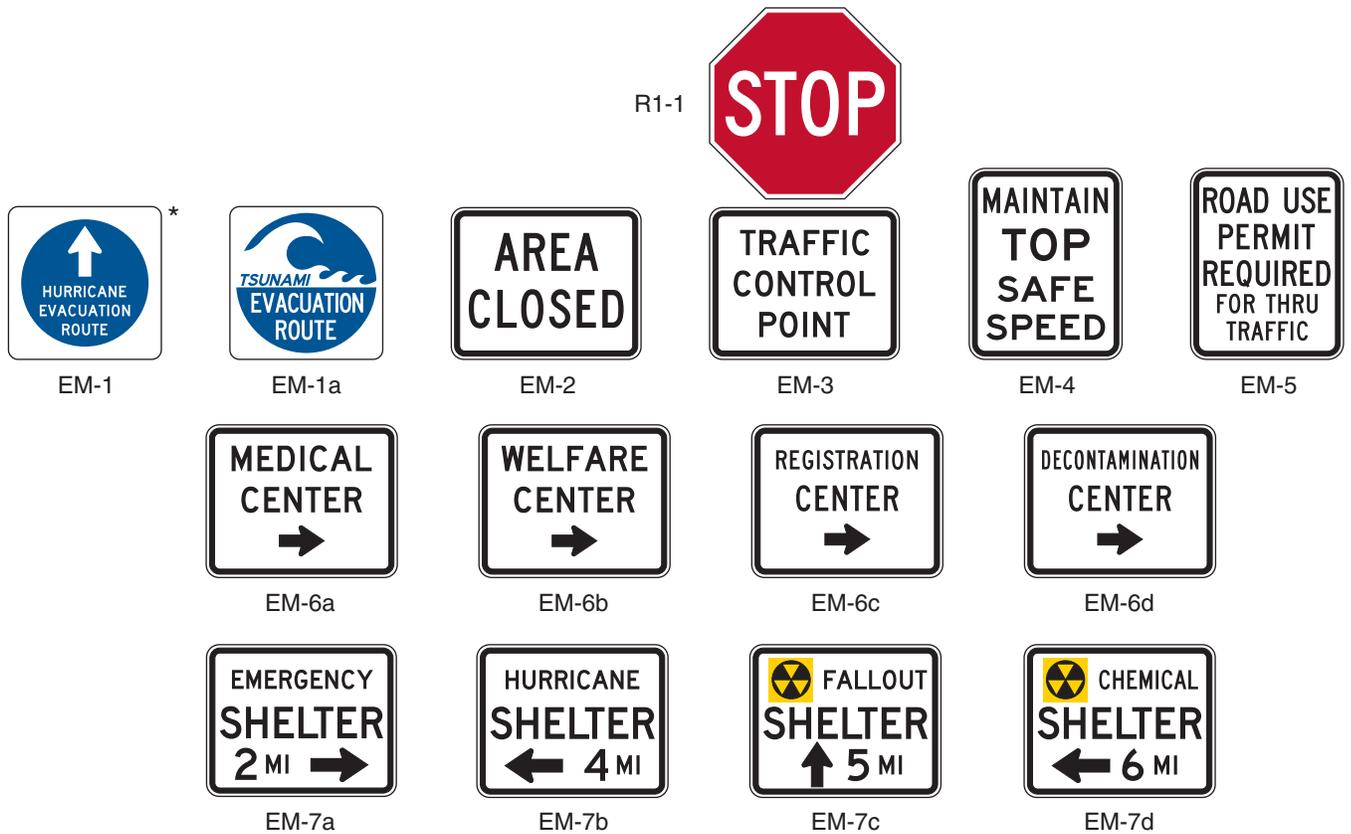
Table 2N-1. Emergency Management Sign Sizes

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

* A minimum size of 18 x 18 may be used on low-volume roadways or roadways with speeds of 25 mph or less

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

Figure 2N-1. Emergency Management Signs



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

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

Standard:

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

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

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

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

Option:

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

Guidance:

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

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

Standard:

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

Guidance:

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

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

Standard:

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

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

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

Guidance:

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

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

Option:

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

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

Support:

- 03 Since any speed zoning would be impractical under such emergency conditions, no minimum speed limit can be prescribed by the MAINTAIN TOP SAFE SPEED sign in numerical terms. Where traffic is supervised by a traffic control point, official instructions will usually be given verbally, and the sign will serve as an occasional reminder of the urgent need for maintaining the proper speed.

Guidance:

- 04 *The sign should be installed as needed, in the same manner as other standard speed signs.*

Standard:

- 05 **If used in rural areas, the MAINTAIN TOP SAFE SPEED sign shall be mounted on the right-hand side of the road at a horizontal distance of not less than 6 feet or more than 10 feet from the roadway edge, and at a minimum height, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of 5 feet. If used in urban areas, the minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, shall be 7 feet, and the nearest edge of the sign shall be not less than 1 foot back from the face of the curb.**

Section 2N.07 ROAD (AREA) USE PERMIT REQUIRED FOR THRU TRAFFIC Sign (EM-5)

Support:

- 01 The intent of the ROAD (AREA) USE PERMIT REQUIRED FOR THRU TRAFFIC (EM-5) sign (see Figure 2N-1) is to notify road users of the presence of the traffic control point so that those who do not have priority permits issued by designated authorities can take another route, or turn back, without making a needless trip and without adding to the screening load at the post. Local traffic, without permits, can proceed as far as the traffic control post.

Standard:

- 02 **If used, the ROAD (AREA) USE PERMIT REQUIRED FOR THRU TRAFFIC (EM-5) sign shall be used at an intersection that is an entrance to a route on which a traffic control point is located.**
- 03 **If used, the sign shall be installed in a manner similar to that of the MAINTAIN TOP SAFE SPEED sign (see Section 2N.06).**

Section 2N.08 Emergency Aid Center Signs (EM-6 Series)**Standard:**

- 01 **In the event of emergency, State and local authorities shall establish various centers for civilian relief, communication, medical service, and similar purposes. To guide the public to such centers a series of directional signs shall be used.**
- 02 **Emergency Aid Center (EM-6 series) signs (see Figure 2N-1) shall carry the designation of the center and an arrow indicating the direction to the center. They shall be installed as needed, at intersections and elsewhere, on the right-hand side of the roadway, in urban areas at a minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of 7 feet, and not less than 1 foot back from the face of the curb, and in rural areas at a minimum height, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of 5 feet, and at a horizontal distance of not less than 6 feet or more than 10 feet from the roadway edge.**
- 03 **Emergency Aid Center signs shall carry one of the following legends, as appropriate, or others designating similar emergency facilities:**
- A. **MEDICAL CENTER (EM-6a),**
 - B. **WELFARE CENTER (EM-6b),**
 - C. **REGISTRATION CENTER (EM-6c), or**
 - D. **DECONTAMINATION CENTER (EM-6d).**
- 04 **The Emergency Aid Center sign shall be a horizontal rectangle. Except as provided in Paragraph 5, the identifying word and the word CENTER, the directional arrow, and the border shall be black on a white background.**

Option:

- 05 When Emergency Aid Center signs are used in an incident situation, such as during the aftermath of a nuclear or biological attack, the background color may be fluorescent pink (see Chapter 6I).

Section 2N.09 Shelter Directional Signs (EM-7 Series)**Standard:**

- 01 **Shelter Directional (EM-7 series) signs (see Figure 2N-1) shall be used to direct the public to selected shelters that have been licensed and marked for emergency use.**
- 02 **The installation of Shelter Directional signs shall comply with established signing standards. Where used, the signs shall not be installed in competition with other necessary highway guide, warning, and regulatory signs.**
- 03 **The Shelter Directional sign shall be a horizontal rectangle. Except as provided in Paragraph 4, the identifying word and the word SHELTER, the directional arrow, the distance to the shelter, and the border shall be black on a white background.**

Option:

- 04 When Shelter Directional signs are used in an incident situation, such as during the aftermath of a nuclear or biological attack, the background color may be fluorescent pink (see Chapter 6I).
- 05 The distance to the shelter may be omitted from the sign when appropriate.
- 06 Shelter Directional signs may carry one of the following legends, or others designating similar emergency facilities:
- A. EMERGENCY (EM-7a),
 - B. HURRICANE (EM-7b),
 - C. FALLOUT (EM-7c), or
 - D. CHEMICAL (EM-7d).
- 07 If appropriate, the name of the facility may be used.
- 08 The Shelter Directional signs may be installed on the Interstate Highway System or any other major highway system when it has been determined that a need exists for such signs as part of a State or local shelter plan.
- 09 The Shelter Directional signs may be used to identify different routes to a shelter to provide for rapid movement of large numbers of persons.

Guidance:

- 10 *The Shelter Directional sign should be used sparingly and only in conjunction with approved plans of State and local authorities.*
- 11 *The Shelter Directional sign should not be posted more than 5 miles from a shelter.*

PART 3

MARKINGS

CHAPTER 3A. GENERAL

Section 3A.01 Functions and Limitations

Support:

- 01 Markings on highways and on private roads open to public travel have important functions in providing guidance and information for the road user. Major marking types include pavement and curb markings, delineators, colored pavements, channelizing devices, and islands. In some cases, markings are used to supplement other traffic control devices such as signs, signals, and other markings. In other instances, markings are used alone to effectively convey regulations, guidance, or warnings in ways not obtainable by the use of other devices.
- 02 Markings have limitations. Visibility of the markings can be limited by snow, debris, and water on or adjacent to the markings. Marking durability is affected by material characteristics, traffic volumes, weather, and location. However, under most highway conditions, markings provide important information while allowing minimal diversion of attention from the roadway.

Section 3A.02 Standardization of Application

Standard:

- 01 **Each standard marking shall be used only to convey the meaning prescribed for that marking in this Manual. When used for applications not described in this Manual, markings shall conform in all respects to the principles and standards set forth in this Manual.**

Guidance:

- 02 *Before any new highway, private road open to public travel (see definition in Section 1A.13), paved detour, or temporary route is opened to public travel, all necessary markings should be in place.*

Standard:

- 03 **Markings that must be visible at night shall be retroreflective unless ambient illumination assures that the markings are adequately visible. All markings on Interstate highways shall be retroreflective.**
- 04 **Markings that are no longer applicable for roadway conditions or restrictions and that might cause confusion for the road user shall be removed or obliterated to be unidentifiable as a marking as soon as practical.**

Option:

- 05 Until they can be removed or obliterated, markings may be temporarily masked with tape that is approximately the same color as the pavement.

Section 3A.03 Maintaining Minimum Pavement Marking Retroreflectivity

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

Section 3A.04 Materials

Support:

- 01 Pavement and curb markings are commonly placed by using paints or thermoplastics; however, other suitable marking materials, including raised pavement markers and colored pavements, are also used. Delineators and channelizing devices are visibly placed in a vertical position similar to signs above the roadway.
- 02 Some marking systems consist of clumps or droplets of material with visible open spaces of bare pavement between the material droplets. These marking systems can function in a manner that is similar to the marking systems that completely cover the pavement surface and are suitable for use as pavement markings if they meet the other pavement marking requirements of the highway agency.

Guidance:

- 03 *The materials used for markings should provide the specified color throughout their useful life.*
- 04 *Consideration should be given to selecting pavement marking materials that will minimize tripping or loss of traction for road users, including pedestrians, bicyclists, and motorcycleists.*
- 05 *Delineators should not present a vertical or horizontal clearance obstacle for pedestrians.*

Section 3A.05 Colors**Standard:**

01 **Markings shall be yellow, white, red, blue, or purple. The colors for markings shall conform to the standard highway colors. Black in conjunction with one of the colors mentioned in the first sentence of this paragraph shall be a usable color.**

02 **When used, white markings for longitudinal lines shall delineate:**

- A. **The separation of traffic flows in the same direction, or**
- B. **The right-hand edge of the roadway.**

03 **When used, yellow markings for longitudinal lines shall delineate:**

- A. **The separation of traffic traveling in opposite directions,**
- B. **The left-hand edge of the roadways of divided highways and one-way streets or ramps, or**
- C. **The separation of two-way left-turn lanes and reversible lanes from other lanes.**

04 **When used, red raised pavement markers or delineators shall delineate:**

- A. **Truck escape ramps, or**
- B. **One-way roadways, ramps, or travel lanes that shall not be entered or used in the direction from which the markers are visible.**

05 **When used, blue markings shall supplement white markings for parking spaces for persons with disabilities.**

06 **When used, purple markings shall supplement lane line or edge line markings for toll plaza approach lanes that are restricted to use only by vehicles with registered electronic toll collection accounts.**

Option:

07 Colors used for official route shield signs (see Section 2D.11) may be used as colors of symbol markings to simulate route shields on the pavement (see Section 3B.20.)

08 Black may be used in combination with the colors mentioned in the first sentence of Paragraph 1 where a light-colored pavement does not provide sufficient contrast with the markings.

Support:

09 When used in combination with other colors, black is not considered a marking color, but only a contrast-enhancing system for the markings.

Section 3A.06 Functions, Widths, and Patterns of Longitudinal Pavement Markings**Standard:**

01 **The general functions of longitudinal lines shall be:**

- A. **A double line indicates maximum or special restrictions,**
- B. **A solid line discourages or prohibits crossing (depending on the specific application),**
- C. **A broken line indicates a permissive condition, and**
- D. **A dotted line provides guidance or warning of a downstream change in lane function.**

02 **The widths and patterns of longitudinal lines shall be as follows:**

- A. **Normal line—4 to 6 inches wide.**
- B. **Wide line—at least twice the width of a normal line.**
- C. **Double line—two parallel lines separated by a discernible space.**
- D. **Broken line—normal line segments separated by gaps.**
- E. **Dotted line—noticeably shorter line segments separated by shorter gaps than used for a broken line. The width of a dotted line extension shall be at least the same as the width of the line it extends.**

Support:

03 The width of the line indicates the degree of emphasis.

Guidance:

04 *Broken lines should consist of 10-foot line segments and 30-foot gaps, or dimensions in a similar ratio of line segments to gaps as appropriate for traffic speeds and need for delineation.*

Support:

05 Patterns for dotted lines depend on the application (see Sections 3B.04 and 3B.08.)

Guidance:

06 *A dotted line for line extensions within an intersection or taper area should consist of 2-foot line segments and 2- to 6-foot gaps. A dotted line used as a lane line should consist of 3-foot line segments and 9-foot gaps.*

CHAPTER 3B. PAVEMENT AND CURB MARKINGS

Section 3B.01 Yellow Center Line Pavement Markings and Warrants

Standard:

- 01 **Center line pavement markings, when used, shall be the pavement markings used to delineate the separation of traffic lanes that have opposite directions of travel on a roadway and shall be yellow.**

Option:

- 02 Center line pavement markings may be placed at a location that is not the geometric center of the roadway.
- 03 On roadways without continuous center line pavement markings, short sections may be marked with center line pavement markings to control the position of traffic at specific locations, such as around curves, over hills, on approaches to grade crossings, at grade crossings, and at bridges.

Standard:

- 04 **The center line markings on two-lane, two-way roadways shall be one of the following as shown in Figure 3B-1:**
- A. **Two-direction passing zone markings consisting of a normal broken yellow line where crossing the center line markings for passing with care is permitted for traffic traveling in either direction;**
 - B. **One-direction no-passing zone markings consisting of a double yellow line, one of which is a normal broken yellow line and the other is a normal solid yellow line, where crossing the center line markings for passing with care is permitted for the traffic traveling adjacent to the broken line, but is prohibited for traffic traveling adjacent to the solid line; or**
 - C. **Two-direction no-passing zone markings consisting of two normal solid yellow lines where crossing the center line markings for passing is prohibited for traffic traveling in either direction.**
- 05 **A single solid yellow line shall not be used as a center line marking on a two-way roadway.**
- 06 **The center line markings on undivided two-way roadways with four or more lanes for moving motor vehicle traffic always available shall be the two-direction no-passing zone markings consisting of a solid double yellow line as shown in Figure 3B-2.**

Guidance:

- 07 *On two-way roadways with three through lanes for moving motor vehicle traffic, two lanes should be designated for traffic in one direction by using one- or two-direction no-passing zone markings as shown in Figure 3B-3.*

Support:

- 08 Sections 11-301(c) and 11-311(c) of the “Uniform Vehicle Code (UVC)” contain information regarding left turns across center line no-passing zone markings and paved medians, respectively. The UVC can be obtained from the National Committee on Uniform Traffic Laws and Ordinances at the address shown on Page i.

Standard:

- 09 **Center line markings shall be placed on all paved urban arterials and collectors that have a traveled way of 20 feet or more in width and an ADT of 6,000 vehicles per day or greater. Center line markings shall also be placed on all paved two-way streets or highways that have three or more lanes for moving motor vehicle traffic.**

Guidance:

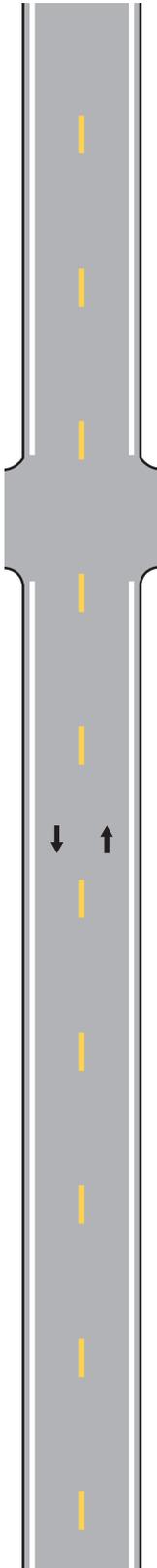
- 10 *Center line markings should be placed on paved urban arterials and collectors that have a traveled way of 20 feet or more in width and an ADT of 4,000 vehicles per day or greater. Center line markings should also be placed on all rural arterials and collectors that have a traveled way of 18 feet or more in width and an ADT of 3,000 vehicles per day or greater. Center line markings should also be placed on other traveled ways where an engineering study indicates such a need.*
- 11 *Engineering judgment should be used in determining whether to place center line markings on traveled ways that are less than 16 feet wide because of the potential for traffic encroaching on the pavement edges, traffic being affected by parked vehicles, and traffic encroaching into the opposing traffic lane.*

Option:

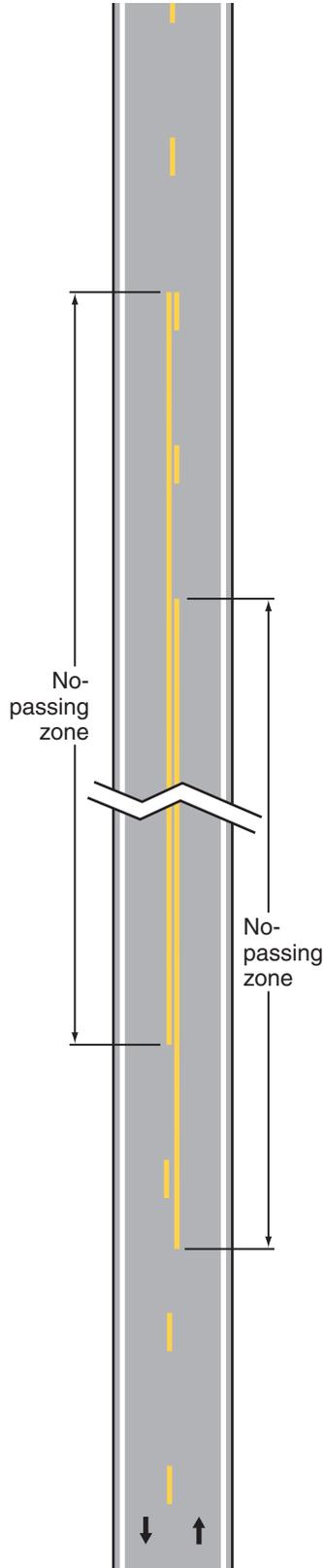
- 12 Center line markings may be placed on other paved two-way traveled ways that are 16 feet or more in width.
- 13 If a traffic count is not available, the ADTs described in this Section may be estimates that are based on engineering judgment.

Figure 3B-1. Examples of Two-Lane, Two-Way Marking Applications

A - Typical two-lane, two-way marking with passing permitted in both directions



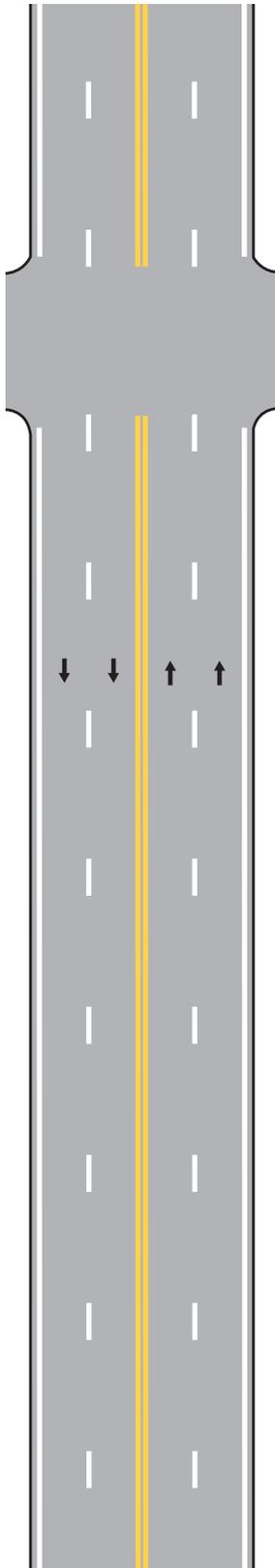
B - Typical two-lane, two-way marking with no-passing zones



Legend
→ Direction of travel

Figure 3B-2. Examples of Four-or-More Lane, Two-Way Marking Applications

A - Typical multi-lane, two-way marking



B - Typical multi-lane, two-way marking with single lane left turn channelization

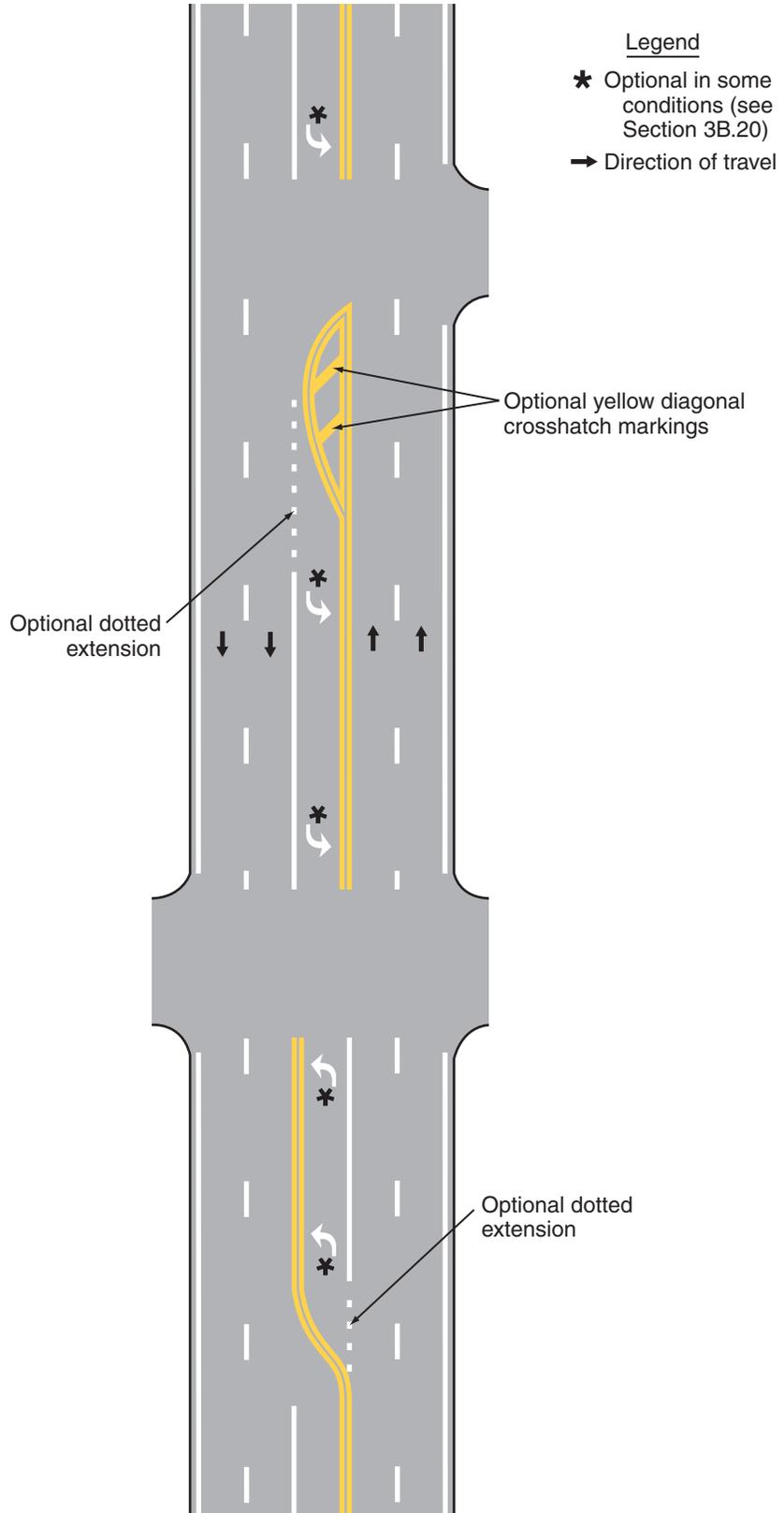
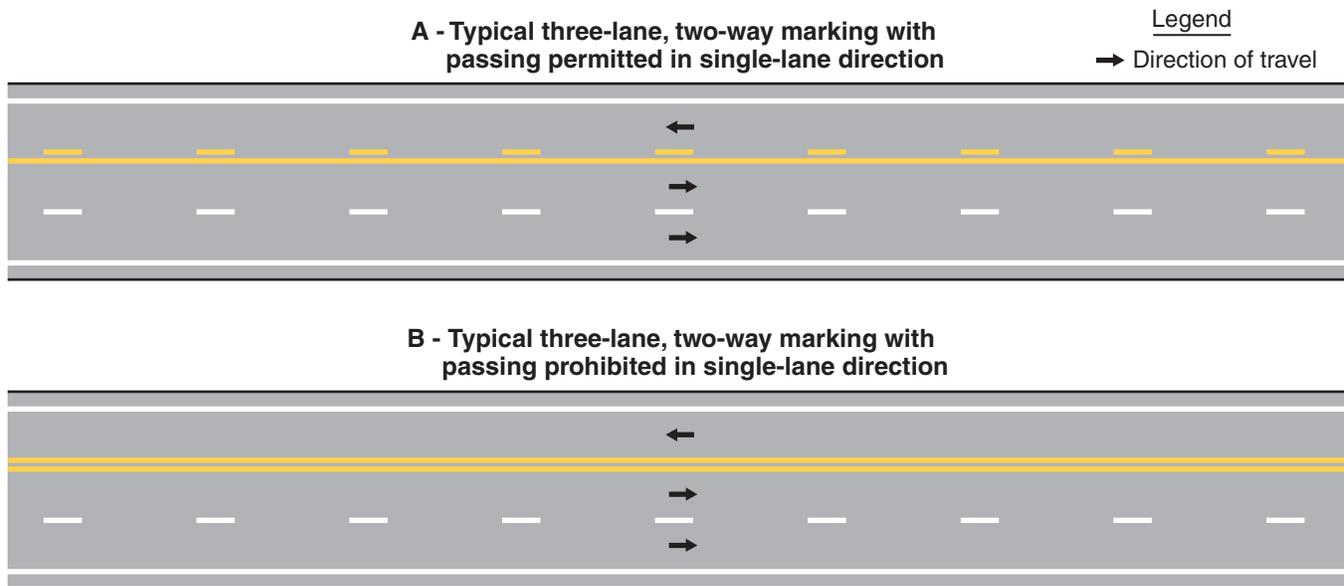


Figure 3B-3. Examples of Three-Lane, Two-Way Marking Applications



Section 3B.02 No-Passing Zone Pavement Markings and Warrants

Standard:

- 01 No-passing zones shall be marked by either the one direction no-passing zone pavement markings or the two-direction no-passing zone pavement markings described in Section 3B.01 and shown in Figures 3B-1 and 3B-3.
- 02 When center line markings are used, no-passing zone markings shall be used on two-way roadways at lane-reduction transitions (see Section 3B.09) and on approaches to obstructions that must be passed on the right (see Section 3B.10).
- 03 On two-way, two- or three-lane roadways where center line markings are installed, no-passing zones shall be established at vertical and horizontal curves and other locations where an engineering study indicates that passing must be prohibited because of inadequate sight distances or other special conditions.
- 04 On roadways with center line markings, no-passing zone markings shall be used at horizontal or vertical curves where the passing sight distance is less than the minimum shown in Table 3B-1 for the 85th-percentile speed or the posted or statutory speed limit. The passing sight distance on a vertical curve is the distance at which an object 3.5 feet above the pavement surface can be seen from a point 3.5 feet above the pavement (see Figure 3B-4). Similarly, the passing sight distance on a horizontal curve is the distance measured along the center line (or right-hand lane line of a three-lane roadway) between two points 3.5 feet above the pavement on a line tangent to the embankment or other obstruction that cuts off the view on the inside of the curve (see Figure 3B-4).

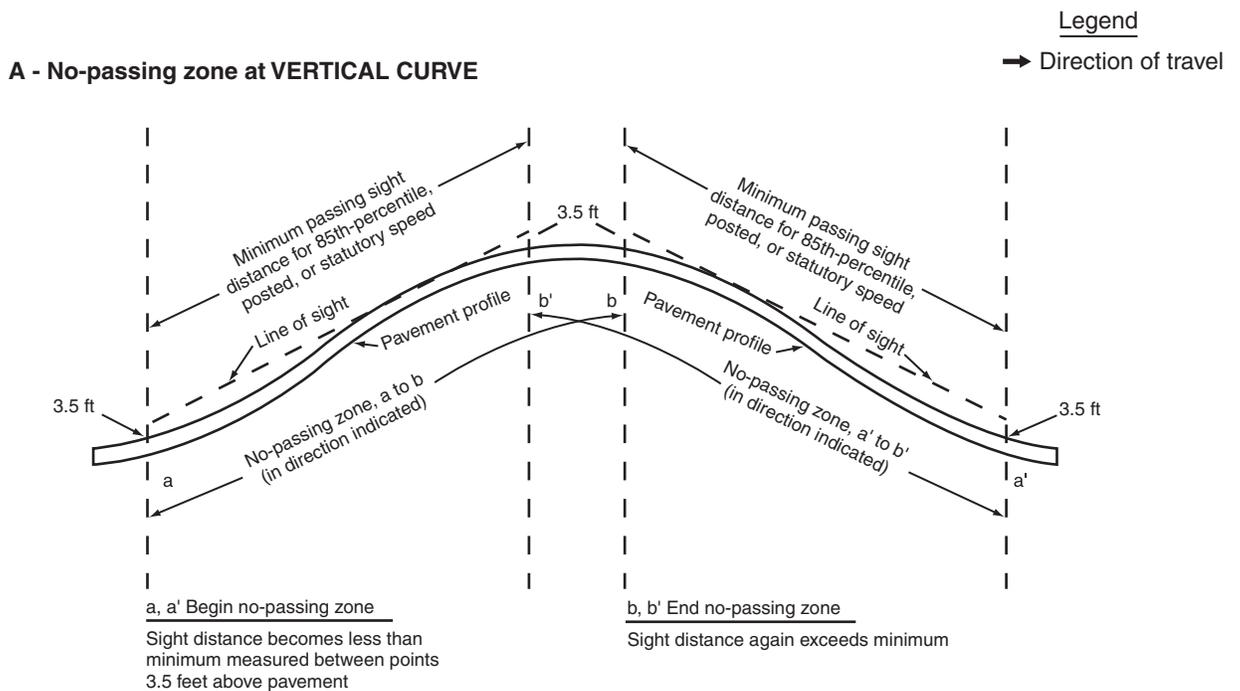
Support:

- 05 The upstream end of a no-passing zone at point “a” in Figure 3B-4 is that point where the sight distance first becomes less than that specified in Table 3B-1. The downstream end of the no-passing zone at point “b” in Figure 3B-4 is that point at which the sight distance again becomes greater than the minimum specified.
- 06 The values of the minimum passing sight distances that are shown in Table 3B-1 are for operational use in marking no-passing zones and are less than the values that are suggested for geometric design by the AASHTO Policy on Geometric Design of Streets and Highways (see Section 1A.11).

Table 3B-1. Minimum Passing Sight Distances for No-Passing Zone Markings

85th-Percentile or Posted or Statutory Speed Limit	Minimum Passing Sight Distance
25 mph	450 feet
30 mph	500 feet
35 mph	550 feet
40 mph	600 feet
45 mph	700 feet
50 mph	800 feet
55 mph	900 feet
60 mph	1,000 feet
65 mph	1,100 feet
70 mph	1,200 feet

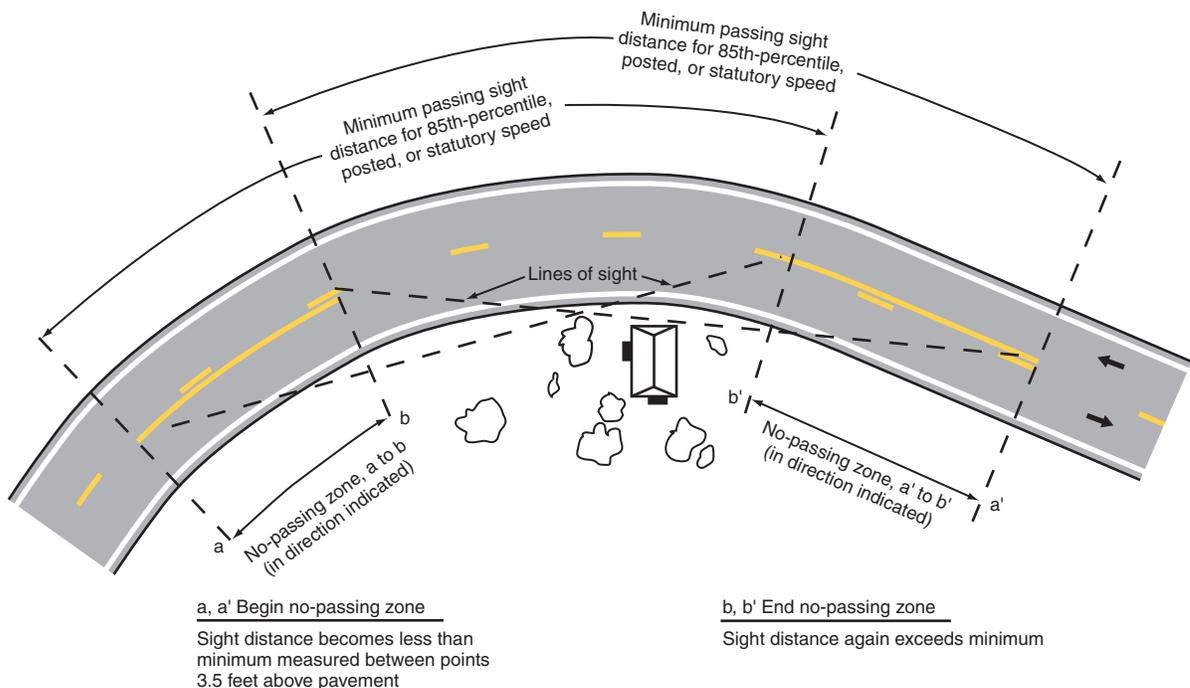
Figure 3B-4. Method of Locating and Determining the Limits of No-Passing Zones at Curves



Profile View

Note: No-passing zones in opposite directions may or may not overlap, depending on alignment

B - No-passing zone at HORIZONTAL CURVE



Plan View

Note: No-passing zones in opposite directions may or may not overlap, depending on alignment

Guidance:

- 07 *Where the distance between successive no-passing zones is less than 400 feet, no-passing markings should connect the zones.*

Standard:

- 08 **Where center line markings are used, no-passing zone markings shall be used on approaches to grade crossings in compliance with Section 8B.27.**

Option:

- 09 In addition to pavement markings, no-passing zone signs (see Sections 2B.28, 2B.29, and 2C.45) may be used to emphasize the existence and extent of a no-passing zone.

Support:

- 10 Section 11-307 of the “Uniform Vehicle Code (UVC)” contains further information regarding required road user behavior in no-passing zones. The UVC can be obtained from the National Committee on Uniform Traffic Laws and Ordinances at the address shown on Page i.

Standard:

- 11 **On three-lane roadways where the direction of travel in the center lane transitions from one direction to the other, a no-passing buffer zone shall be provided in the center lane as shown in Figure 3B-5. A lane-reduction transition (see Section 3B.09) shall be provided at each end of the buffer zone.**

- 12 **The buffer zone shall be a flush median island formed by two sets of double yellow center line markings that is at least 50 feet in length.**

Option:

- 13 Yellow diagonal crosshatch markings (see Section 3B.24) may be placed in the flush median area between the two sets of no-passing zone markings as shown in Figure 3B-5.

Guidance:

- 14 *For three-lane roadways having a posted or statutory speed limit of 45 mph or greater, the lane transition taper length should be computed by the formula $L = WS$. For roadways where the posted or statutory speed limit is less than 45 mph, the formula $L = WS^2/60$ should be used to compute the taper length.*

Support:

- 15 Under both formulas, L equals the taper length in feet, W equals the width of the center lane or offset distance in feet, and S equals the 85th-percentile speed or the posted or statutory speed limit, whichever is higher.

Guidance:

- 16 *The minimum lane transition taper length should be 100 feet in urban areas and 200 feet in rural areas.*

Section 3B.03 Other Yellow Longitudinal Pavement Markings**Standard:**

- 01 **If reversible lanes are used, the lane line pavement markings on each side of reversible lanes shall consist of a normal broken double yellow line to delineate the edge of a lane in which the direction of travel is reversed from time to time, such that each of these markings serve as the center line markings of the roadway during some period (see Figure 3B-6).**

- 02 **Signs (see Section 2B.26), lane-use control signals (see Chapter 4M), or both shall be used to supplement reversible lane pavement markings.**

- 03 **If a two-way left-turn lane that is never operated as a reversible lane is used, the lane line pavement markings on each side of the two-way left-turn lane shall consist of a normal broken yellow line and a normal solid yellow line to delineate the edges of a lane that can be used by traffic in either direction as part of a left-turn maneuver. These markings shall be placed with the broken line toward the two-way left-turn lane and the solid line toward the adjacent traffic lane as shown in Figure 3B-7.**

Guidance:

- 04 *White two-way left-turn lane-use arrows (see Figure 3B-7), should be used in conjunction with the longitudinal two-way left-turn markings at the locations described in Section 3B.20.*

- 05 *Signs should be used in conjunction with the two-way left turn markings (see Section 2B.24).*

Standard:

- 06 **If a continuous flush median island formed by pavement markings separating travel in opposite directions is used, two sets of solid double yellow lines shall be used to form the island as shown in Figures 3B-2 and 3B-5. Other markings in the median island area shall also be yellow, except crosswalk markings which shall be white (see Section 3B.18).**

Figure 3B-5. Example of Application of Three-Lane, Two-Way Marking for Changing Direction of the Center Lane

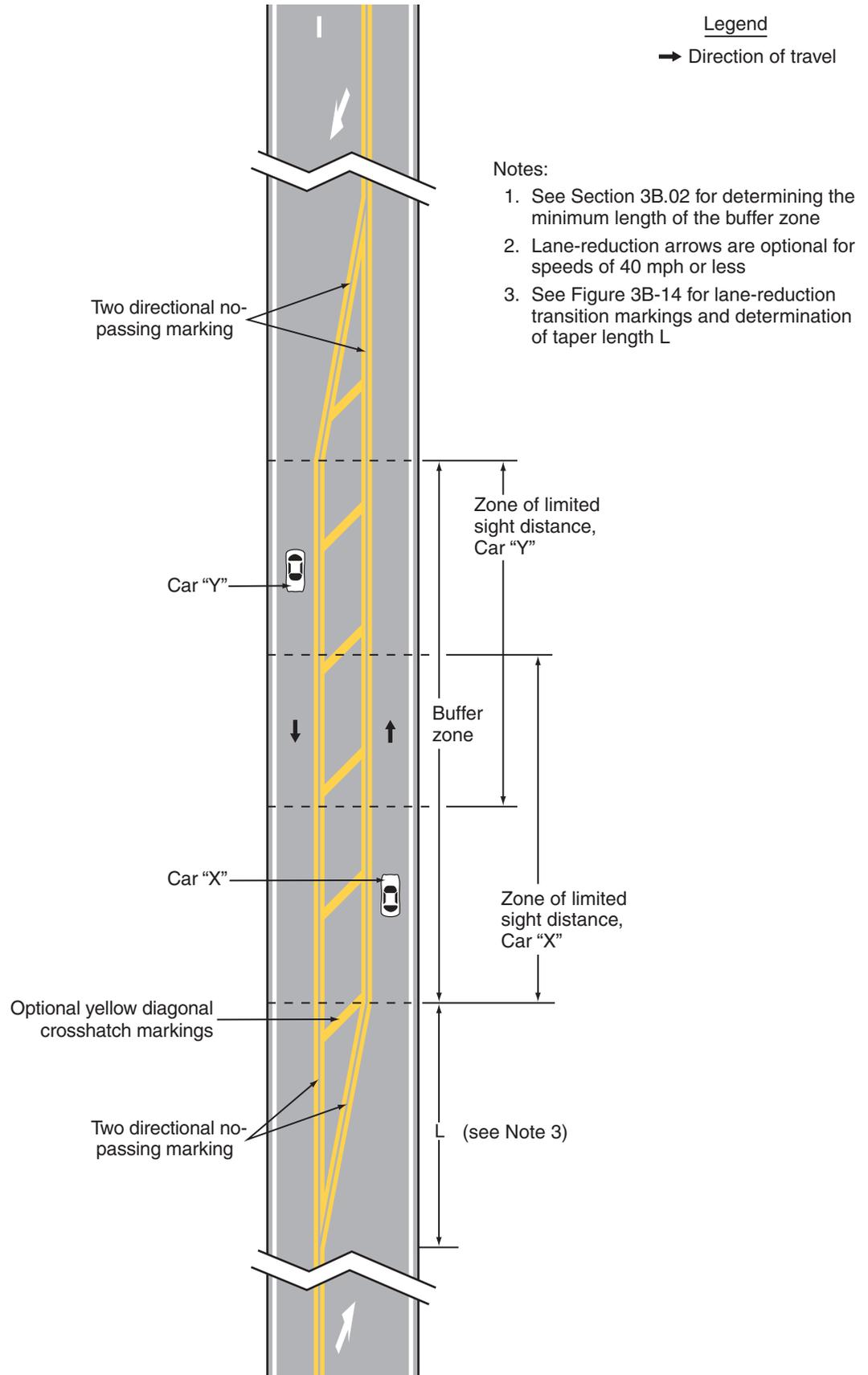
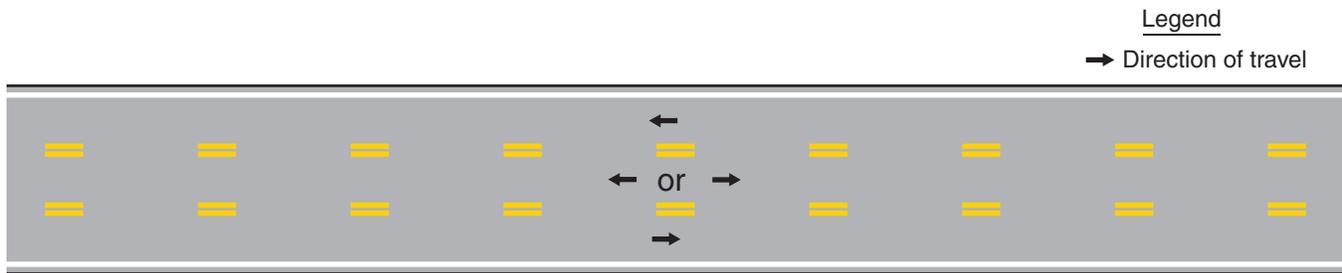


Figure 3B-6. Example of Reversible Lane Marking Application**Section 3B.04 White Lane Line Pavement Markings and Warrants****Standard:**

01 When used, lane line pavement markings delineating the separation of traffic lanes that have the same direction of travel shall be white.

02 Lane line markings shall be used on all freeways and Interstate highways.

Guidance:

03 Lane line markings should be used on all roadways that are intended to operate with two or more adjacent traffic lanes in the same direction of travel, except as otherwise required for reversible lanes. Lane line markings should also be used at congested locations where the roadway will accommodate more traffic lanes with lane line markings than without the markings.

Support:

04 Examples of lane line markings are shown in Figures 3B-2, 3B-3, and 3B-7 through 3B-13.

Standard:

05 Except as provided in Paragraph 6, where crossing the lane line markings with care is permitted, the lane line markings shall consist of a normal broken white line.

06 A dotted white line marking shall be used as the lane line to separate a through lane that continues beyond the interchange or intersection from an adjacent lane for any of the following conditions:

- A. A deceleration or acceleration lane,
- B. A through lane that becomes a mandatory exit or turn lane,
- C. An auxiliary lane 2 miles or less in length between an entrance ramp and an exit ramp, or
- D. An auxiliary lane 1 mile or less in length between two adjacent intersections.

07 For exit ramps with a parallel deceleration lane, a normal width dotted white lane line shall be installed from the upstream end of the full-width deceleration lane to the theoretical gore or to the upstream end of a solid white lane line, if used, that extends upstream from the theoretical gore as shown in Drawings A and C of Figure 3B-8.

Option:

08 For exit ramps with a parallel deceleration lane, a normal width dotted white line extension may be installed in the taper area upstream from the full-width deceleration lane as shown in Drawings A and C of Figure 3B-8.

09 For an exit ramp with a tapered deceleration lane, a normal width dotted white line extension may be installed from the theoretical gore through the taper area such that it meets the edge line at the upstream end of the taper as shown in Drawing B of Figure 3B-8.

Standard:

10 For entrance ramps with a parallel acceleration lane, a normal width dotted white lane line shall be installed from the theoretical gore or from the downstream end of a solid white lane line, if used, that extends downstream from the theoretical gore, to a point at least one-half the distance from the theoretical gore to the downstream end of the acceleration taper, as shown in Drawing A of Figure 3B-9.

Option:

11 For entrance ramps with a parallel acceleration lane, a normal width dotted white line extension may be installed from the downstream end of the dotted white lane line to the downstream end of the acceleration taper, as shown in Drawing A of Figure 3B-9.

12 For entrance ramps with a tapered acceleration lane, a normal width dotted white line extension may be installed from the downstream end of the channelizing line adjacent to the through lane to the downstream end of the acceleration taper, as shown in Drawings B and C of Figure 3B-9.

Figure 3B-7. Example of Two-Way Left-Turn Lane Marking Applications

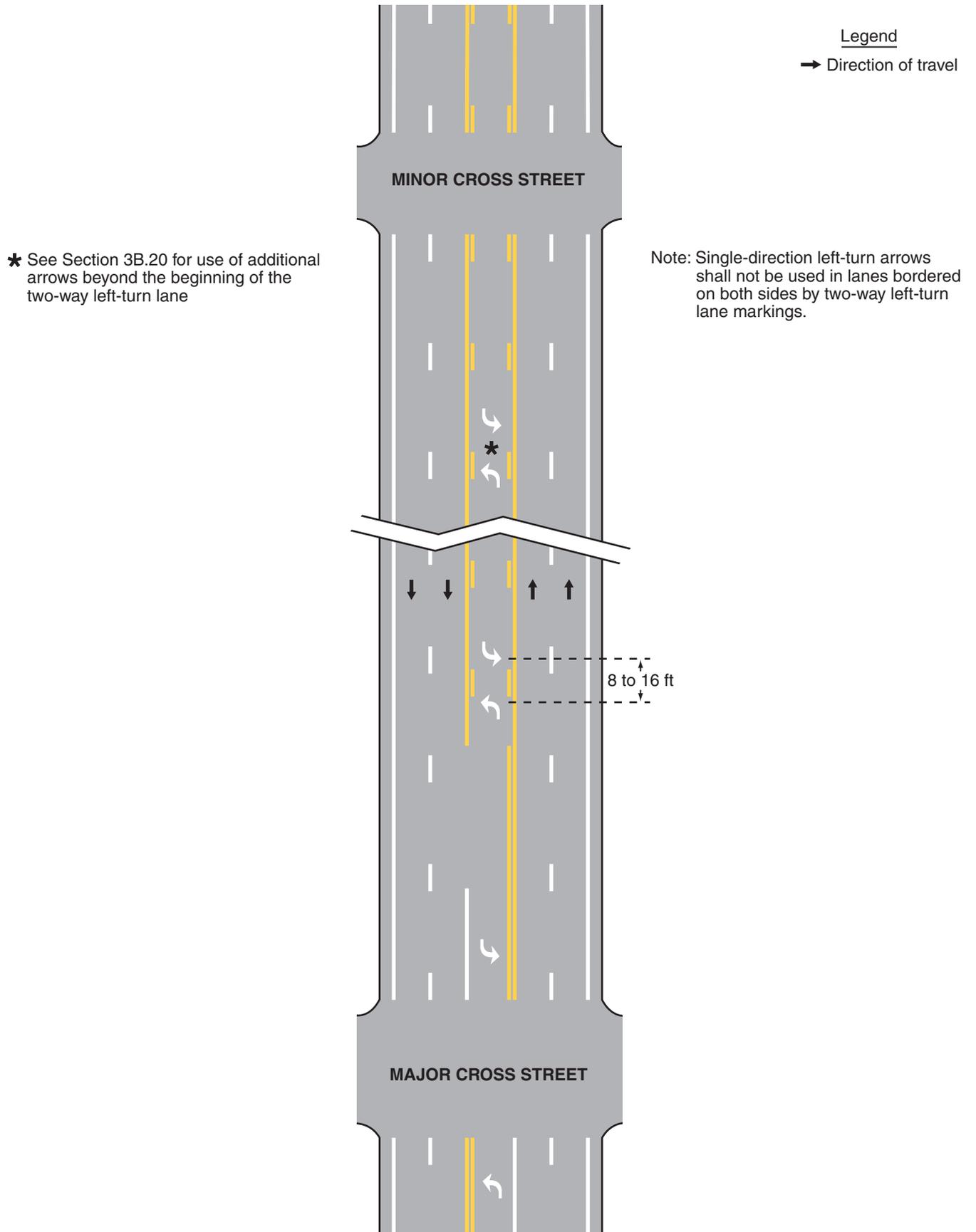


Figure 3B-8. Examples of Dotted Line and Channelizing Line Applications for Exit Ramp Markings (Sheet 1 of 2)

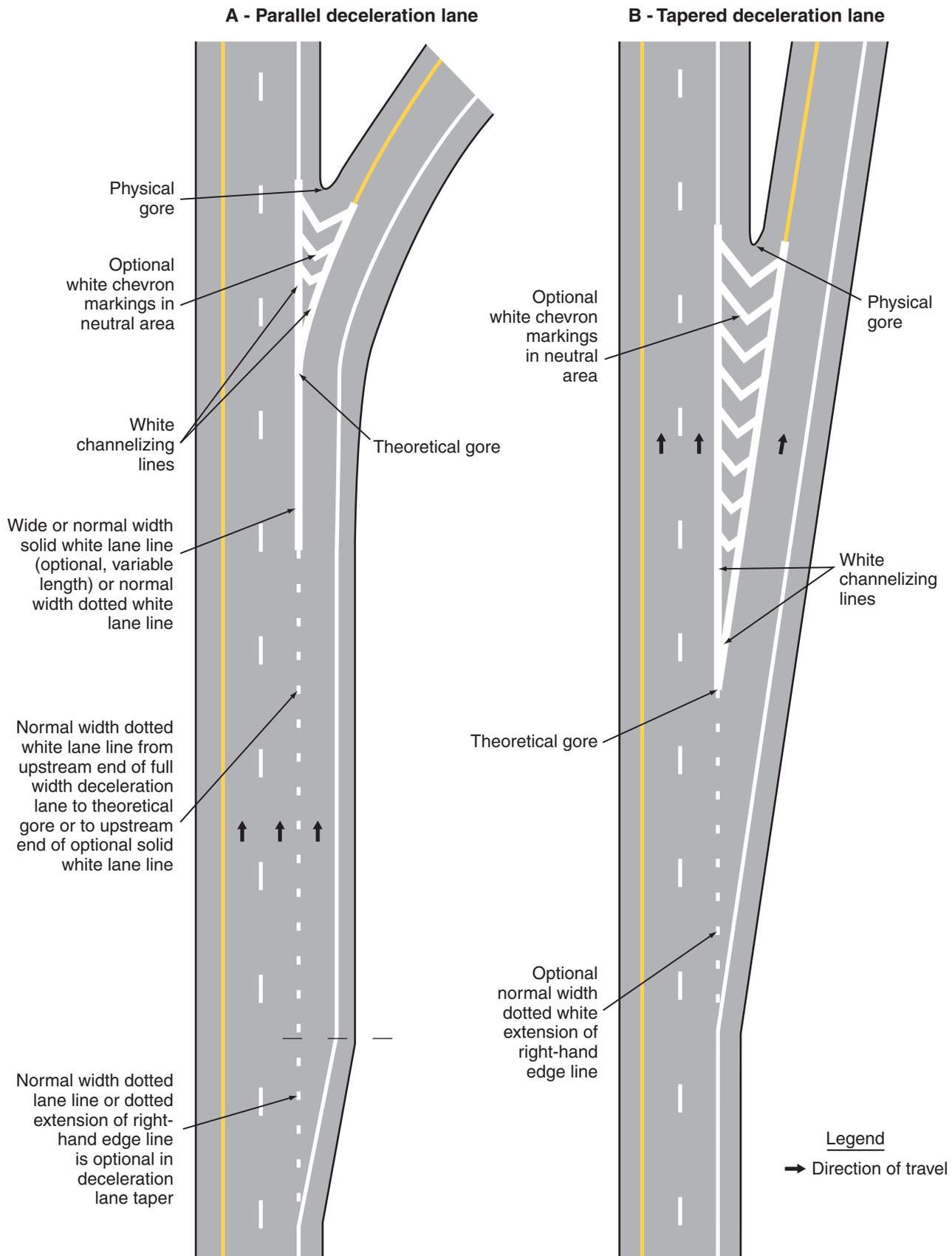


Figure 3B-8. Examples of Dotted Line and Channelizing Line Applications for Exit Ramp Markings (Sheet 2 of 2)

C – Parallel deceleration lane at a multi-lane exit ramp having an optional exit lane that also carries the through route

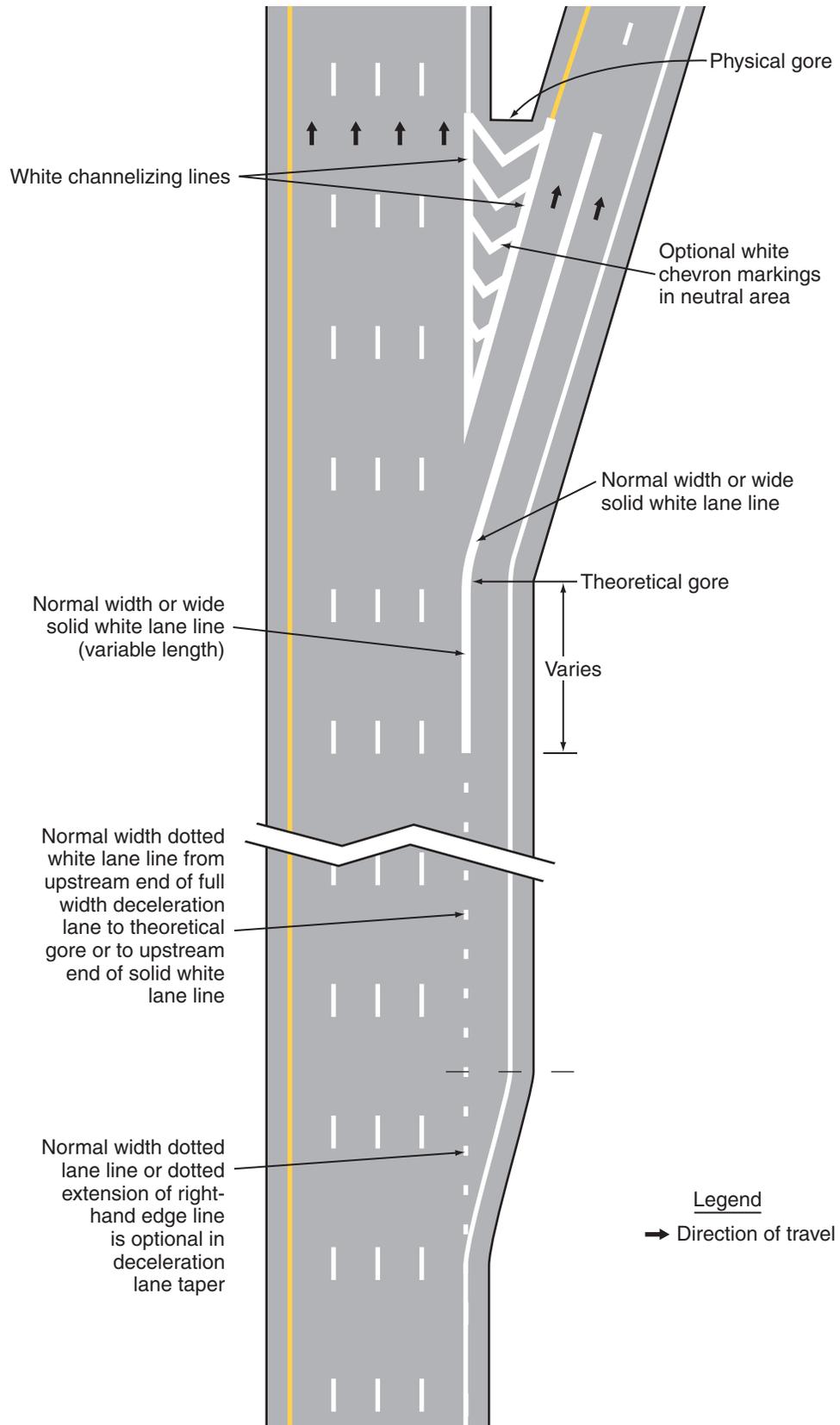


Figure 3B-9. Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings (Sheet 1 of 2)

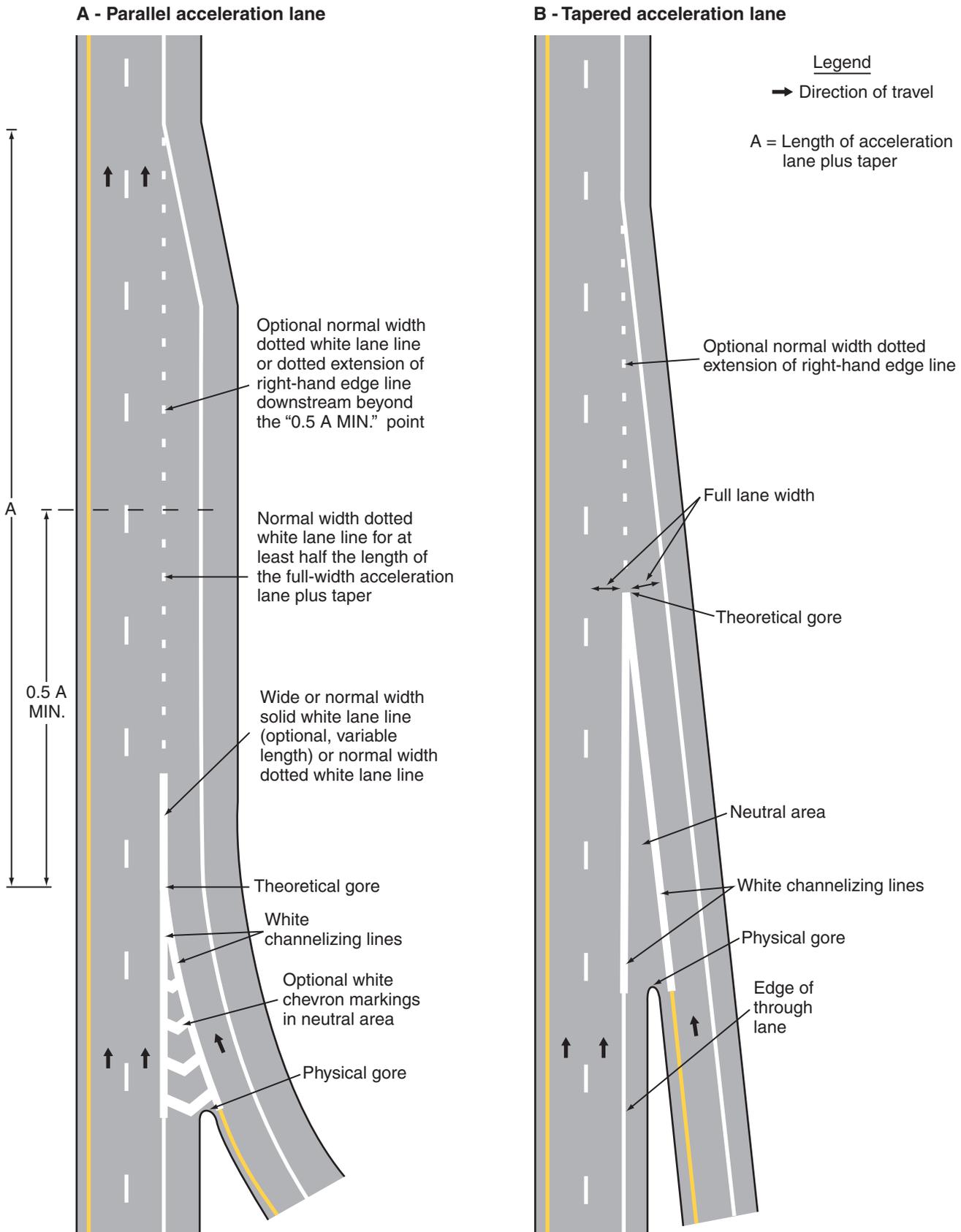
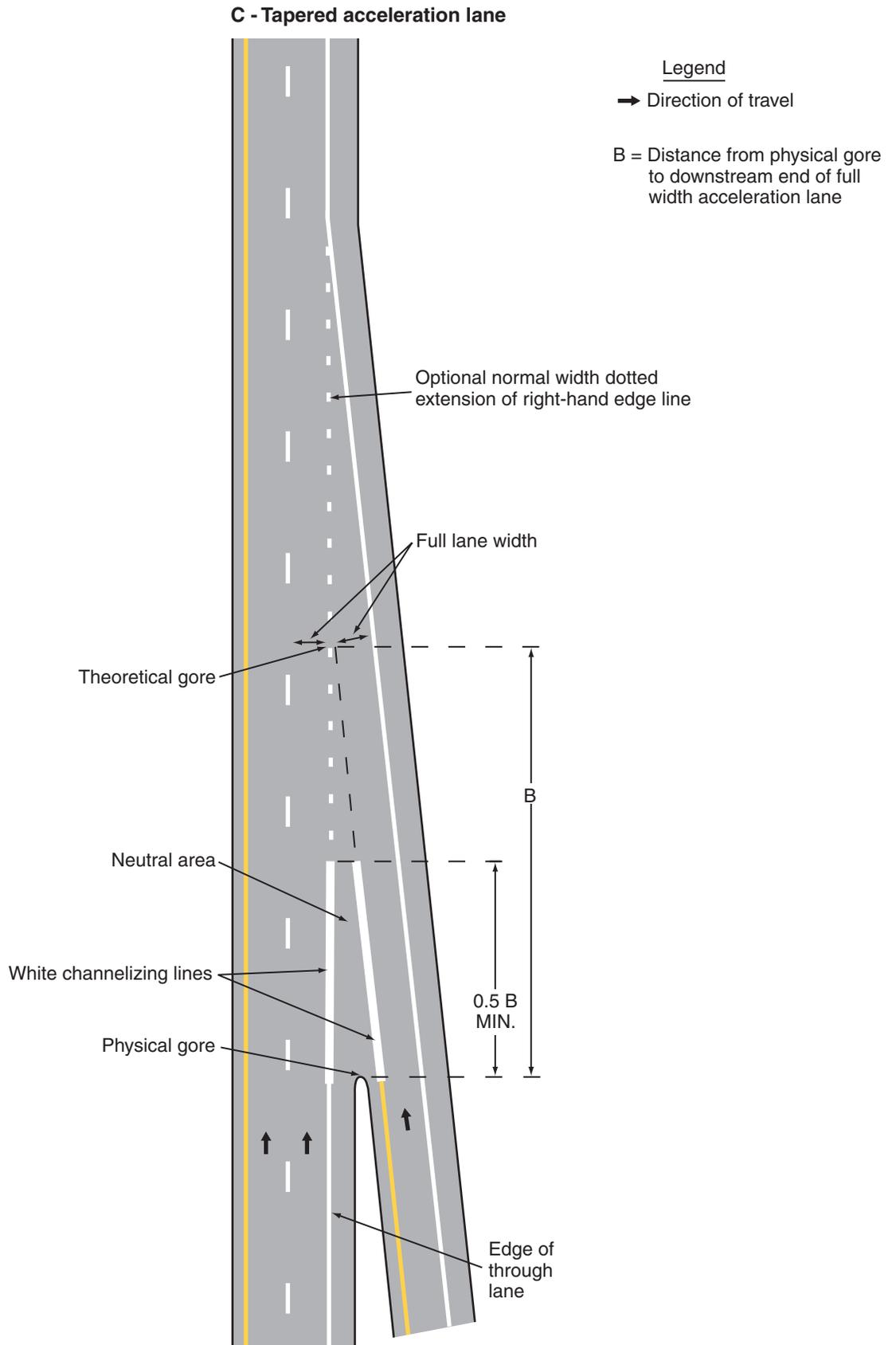


Figure 3B-9. Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings (Sheet 2 of 2)



Standard:

- 13 **A wide dotted white lane line shall be used:**
- A. As a lane drop marking in advance of lane drops at exit ramps to distinguish a lane drop from a normal exit ramp (see Drawings A, B, and C of Figure 3B-10),
 - B. In advance of freeway route splits with dedicated lanes (see Drawing D of Figure 3B-10),
 - C. To separate a through lane that continues beyond an interchange from an adjacent auxiliary lane between an entrance ramp and an exit ramp (see Drawing E of Figure 3B-10),
 - D. As a lane drop marking in advance of lane drops at intersections to distinguish a lane drop from an intersection through lane (see Drawing A of Figure 3B-11), and
 - E. To separate a through lane that continues beyond an intersection from an adjacent auxiliary lane between two intersections (see Drawing B of Figure 3B-11).

Guidance:

- 14 *Lane drop markings used in advance of lane drops at freeway and expressway exit ramps should begin at least 1/2 mile in advance of the theoretical gore.*
- 15 *On the approach to a multi-lane exit ramp having an optional exit lane that also carries through traffic, lane line markings should be used as illustrated in Drawing B of Figure 3B-10. In this case, if the right-most exit lane is an added lane such as a parallel deceleration lane, the lane drop marking should begin at the upstream end of the full-width deceleration lane, as shown in Drawing C of Figure 3B-8.*
- 16 *Lane drop markings used in advance of lane drops at intersections should begin a distance in advance of the intersection that is determined by engineering judgment as suitable to enable drivers who do not desire to make the mandatory turn to move out of the lane being dropped prior to reaching the queue of vehicles that are waiting to make the turn. The lane drop marking should begin no closer to the intersection than the most upstream regulatory or warning sign associated with the lane drop.*
- 17 *The dotted white lane lines that are used for lane drop markings and that are used as a lane line separating through lanes from auxiliary lanes should consist of line segments that are 3 feet in length separated by 9-foot gaps.*

Support:

- 18 Section 3B.20 contains information regarding other markings that are associated with lane drops, such as lane-use arrow markings and ONLY word markings.
- 19 Section 3B.09 contains information about the lane line markings that are to be used for transition areas where the number of through lanes is reduced.

Standard:

- 20 **Where crossing the lane line markings is discouraged, the lane line markings shall consist of a normal or wide solid white line.**

Option:

- 21 Where it is intended to discourage lane changing on the approach to an exit ramp, a wide solid white lane line may extend upstream from the theoretical gore or, for multi-lane exits, as shown in Drawing B of Figure 3B-10, for a distance that is determined by engineering judgment.
- 22 Where lane changes might cause conflicts, a wide or normal solid white lane line may extend upstream from an intersection.
- 23 In the case of a lane drop at an exit ramp or intersection, such a solid white line may replace a portion, but not all of the length of the wide dotted white lane line.

Support:

- 24 Section 3B.09 contains information about the lane line markings that are to be used for transition areas where the number of through lanes is reduced.

Guidance:

- 25 *On approaches to intersections, a solid white lane line marking should be used to separate a through lane from an added mandatory turn lane.*

Option:

- 26 On approaches to intersections, solid white lane line markings may be used to separate adjacent through lanes or adjacent mandatory turn lanes from each other.
- 27 Where the median width allows the left-turn lanes to be separated from the through lanes to give drivers on opposing approaches a less obstructed view of opposing through traffic, white pavement markings may be used to form channelizing islands as shown in Figure 2B-17.

Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings (Sheet 1 of 5)

A – Lane drop at a single lane exit ramp

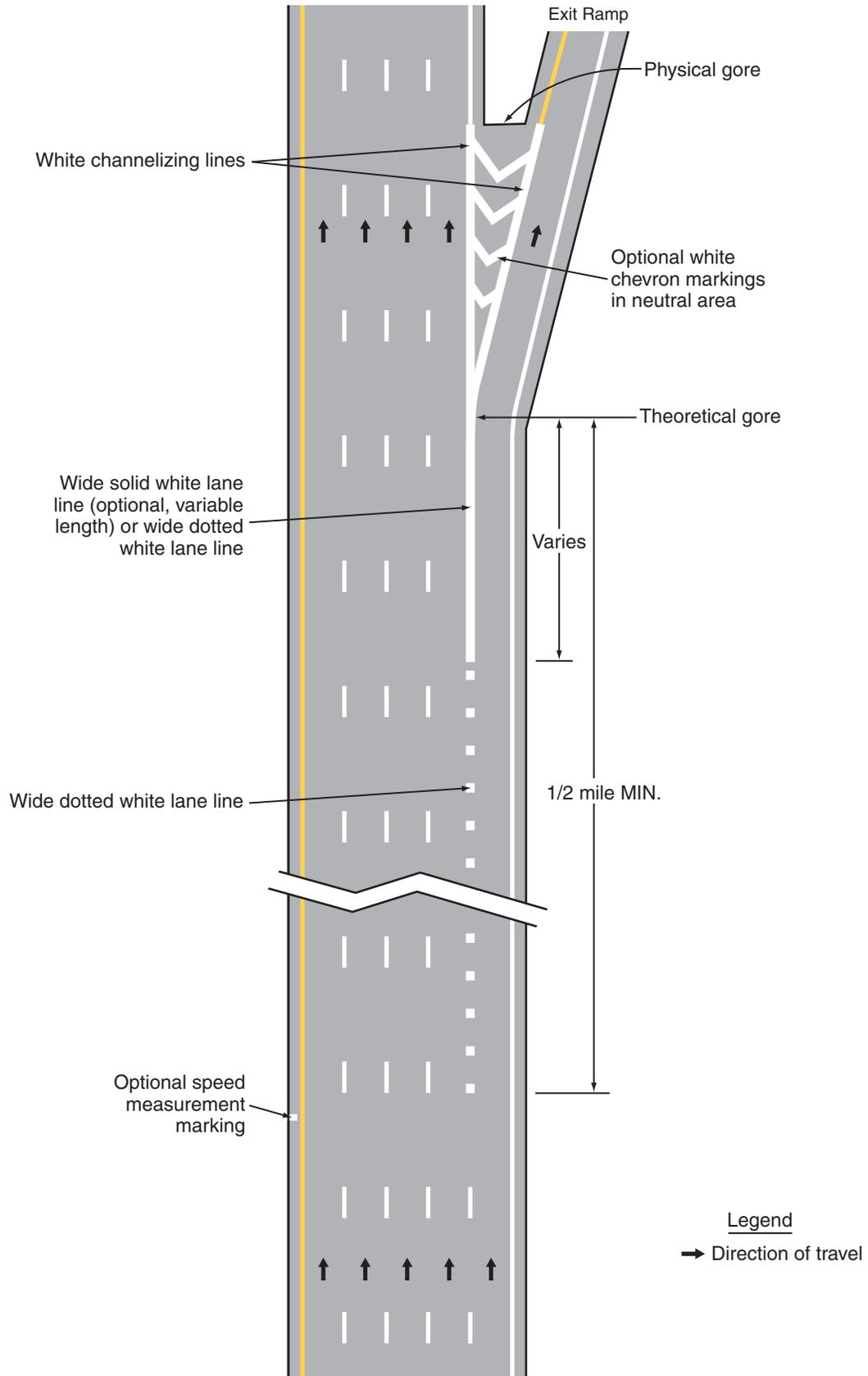


Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings (Sheet 2 of 5)

B – Lane drop at a multi-lane exit ramp having an optional exit lane that also carries the through route

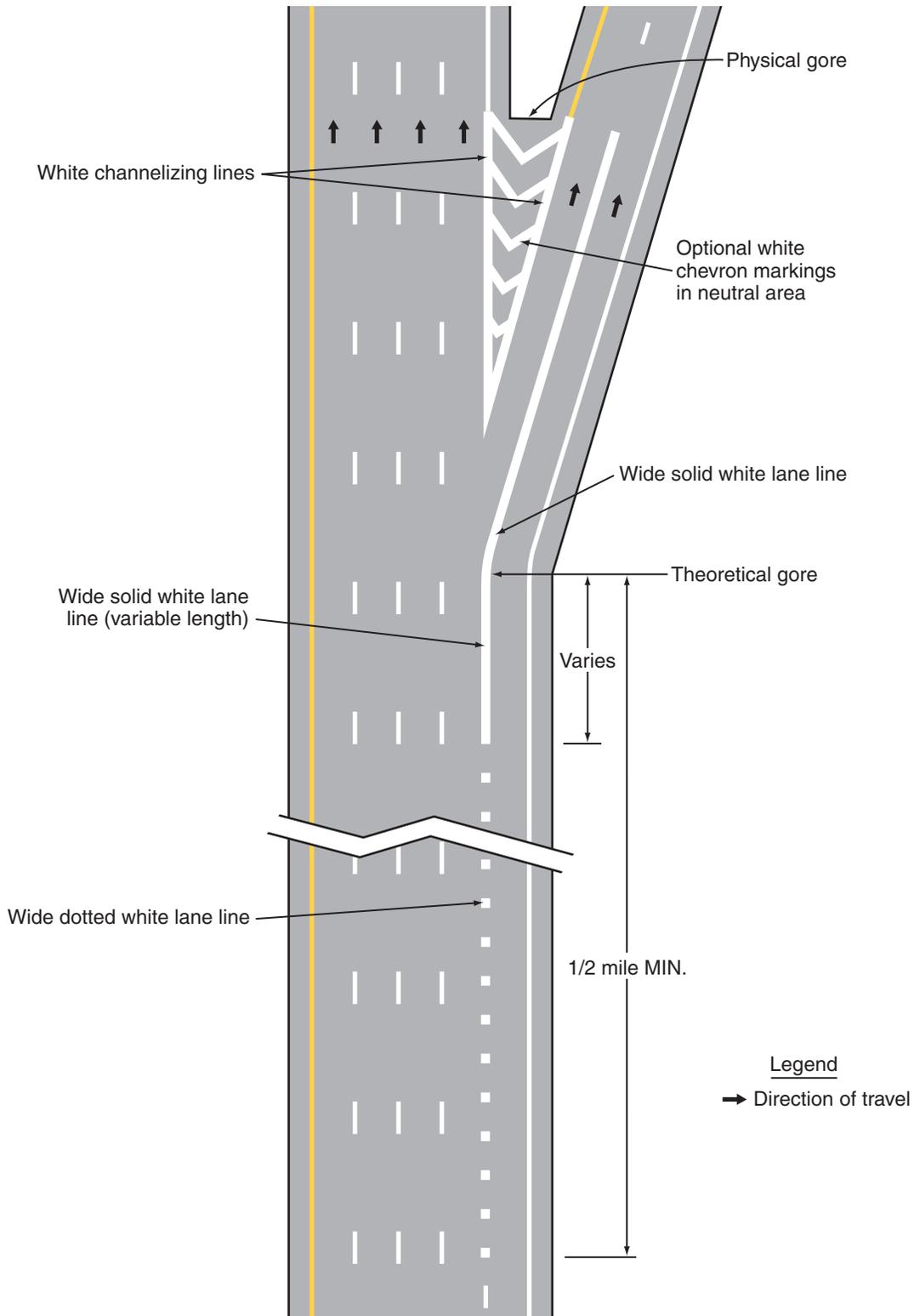


Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings (Sheet 3 of 5)

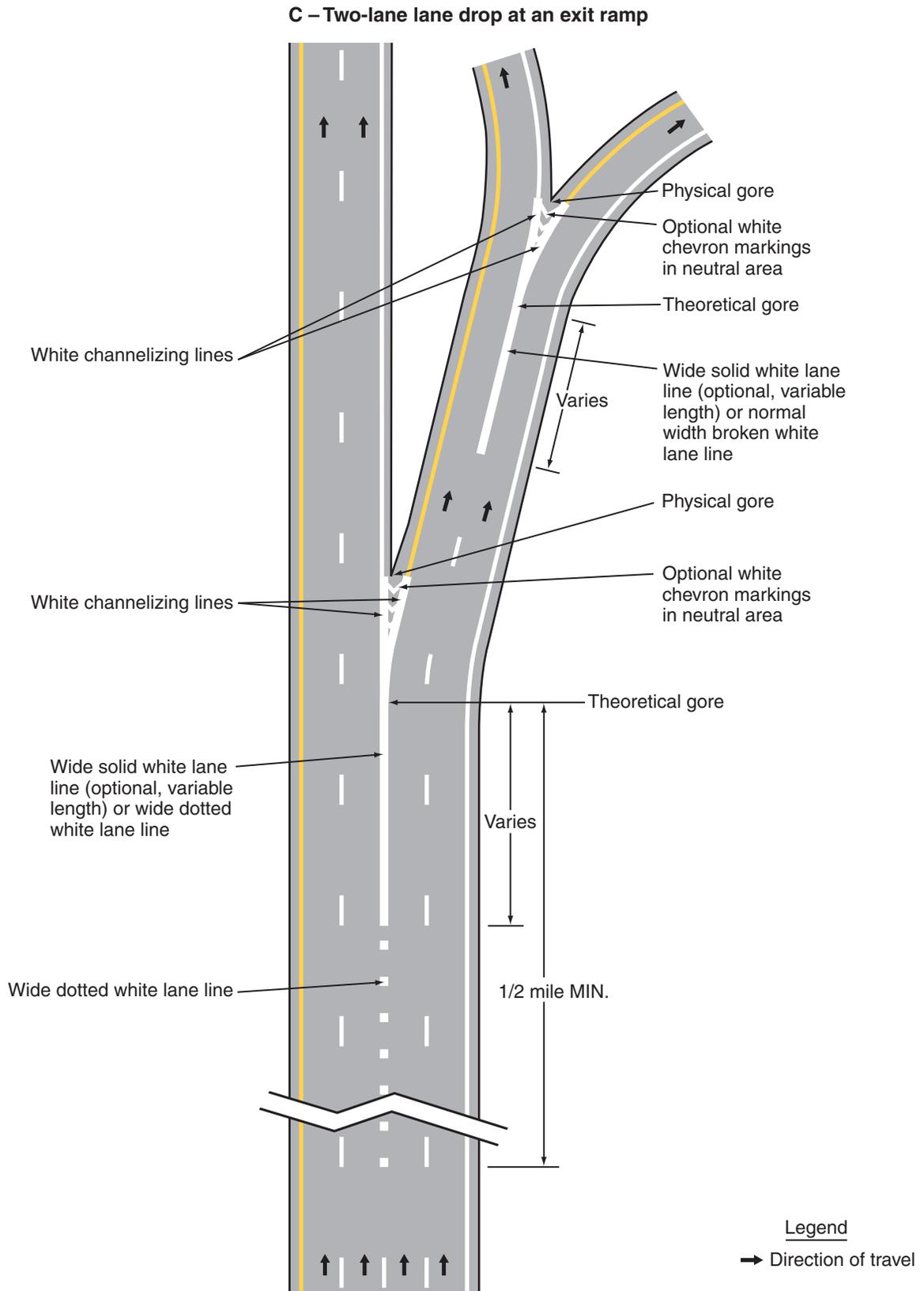


Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings (Sheet 4 of 5)

D – Route split with dedicated lanes

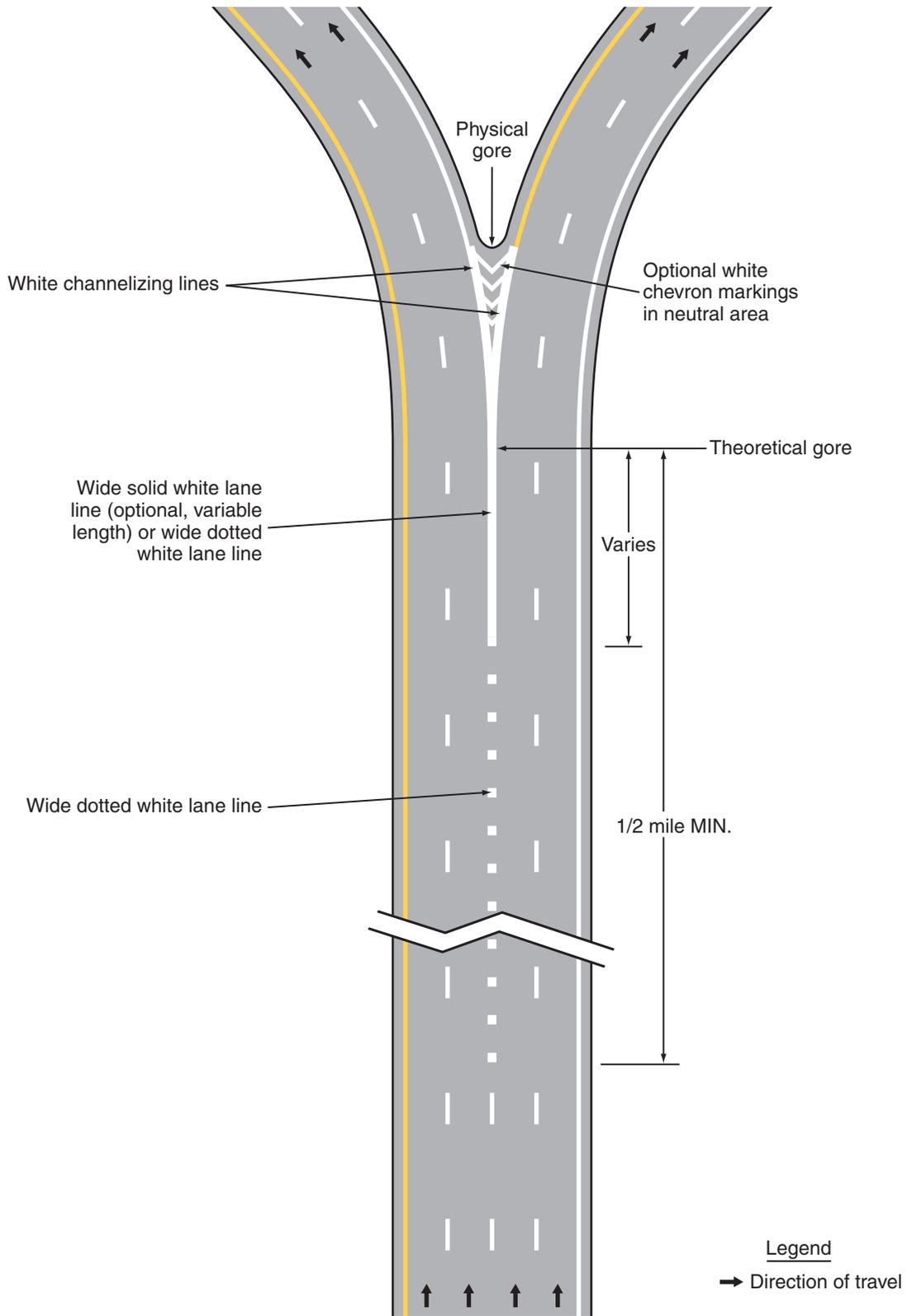


Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings (Sheet 5 of 5)

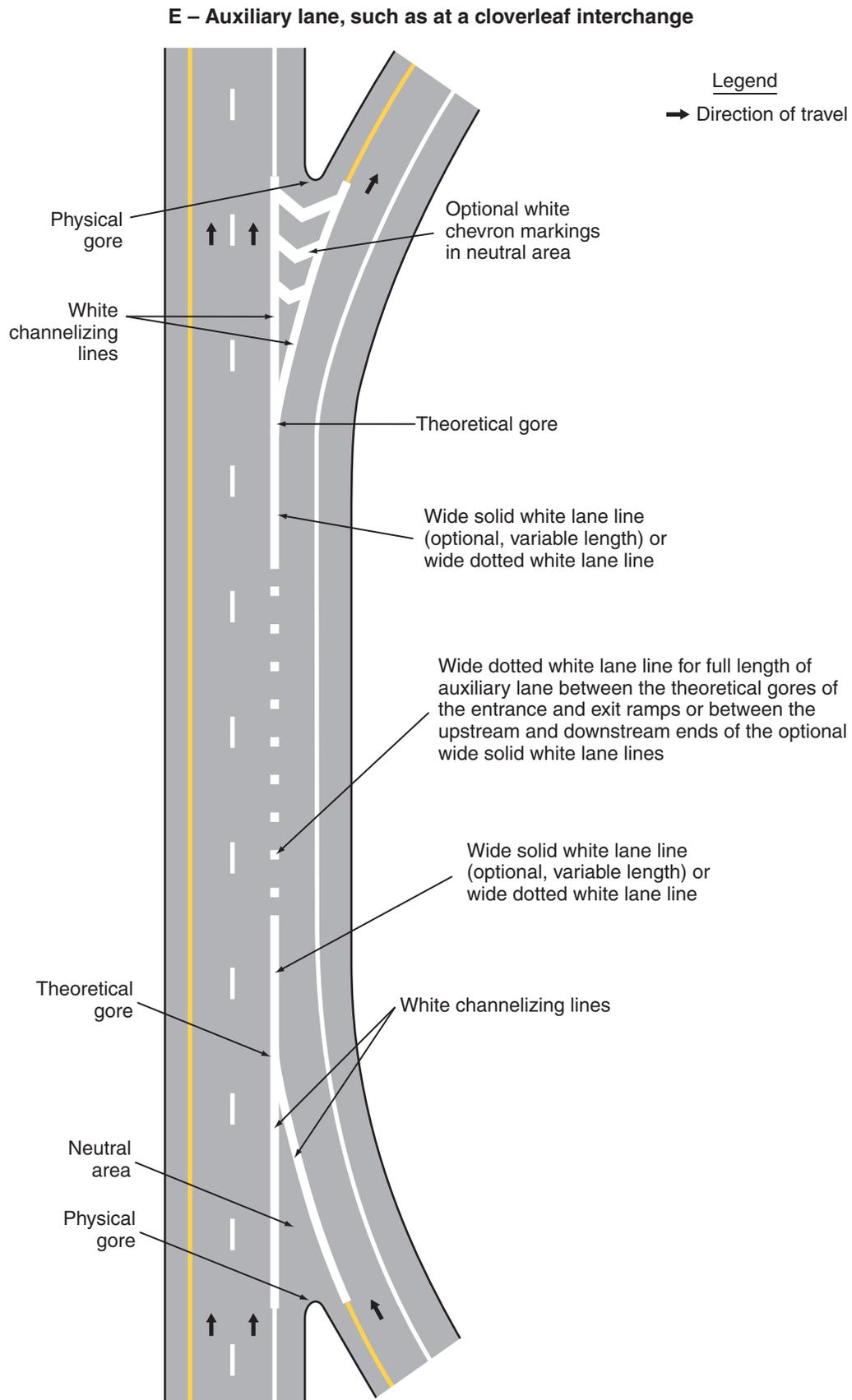


Figure 3B-11. Examples of Applications of Conventional Road Lane-Drop Markings
(Sheet 1 of 2)

A – Lane drop at an intersection

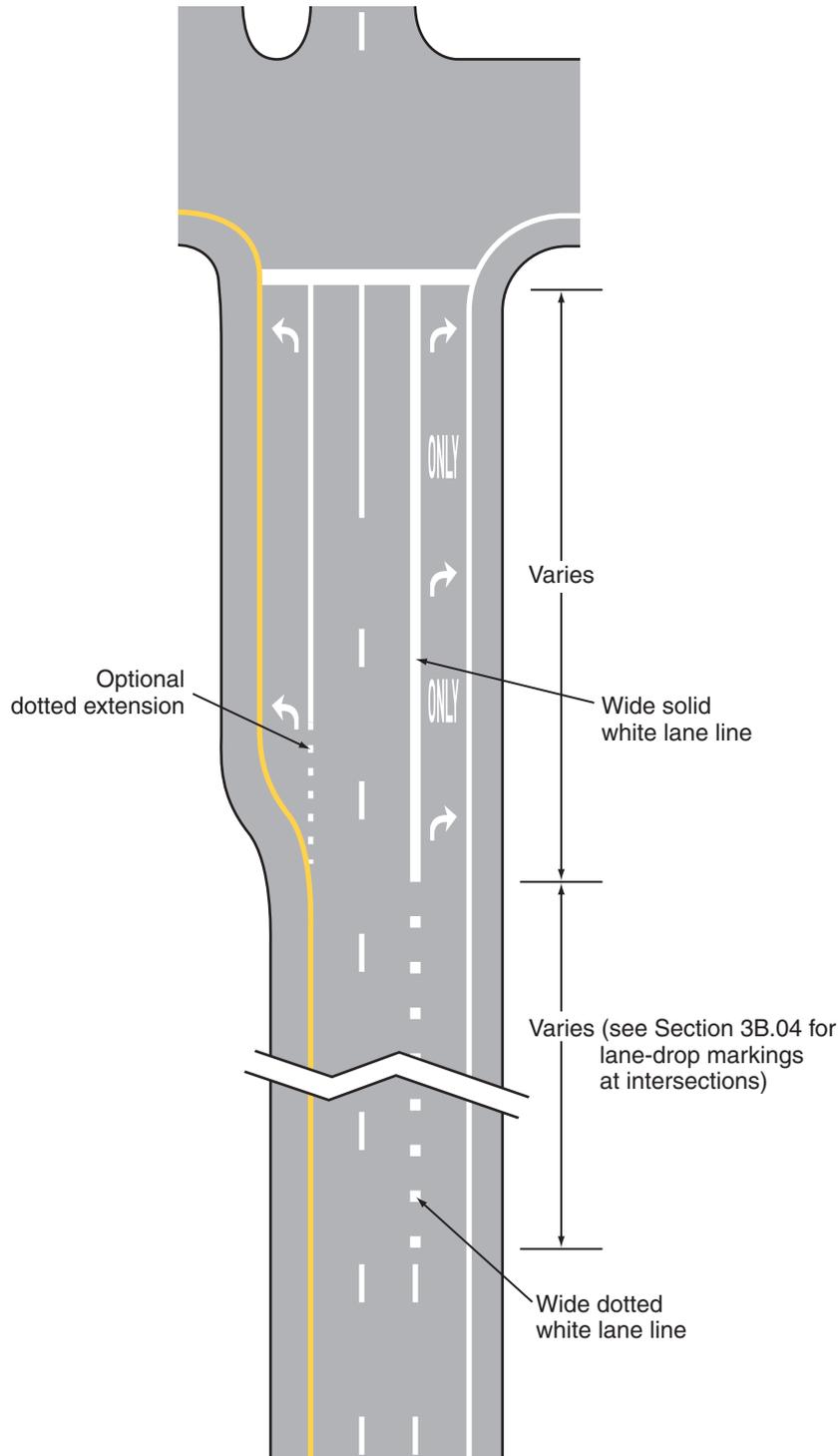
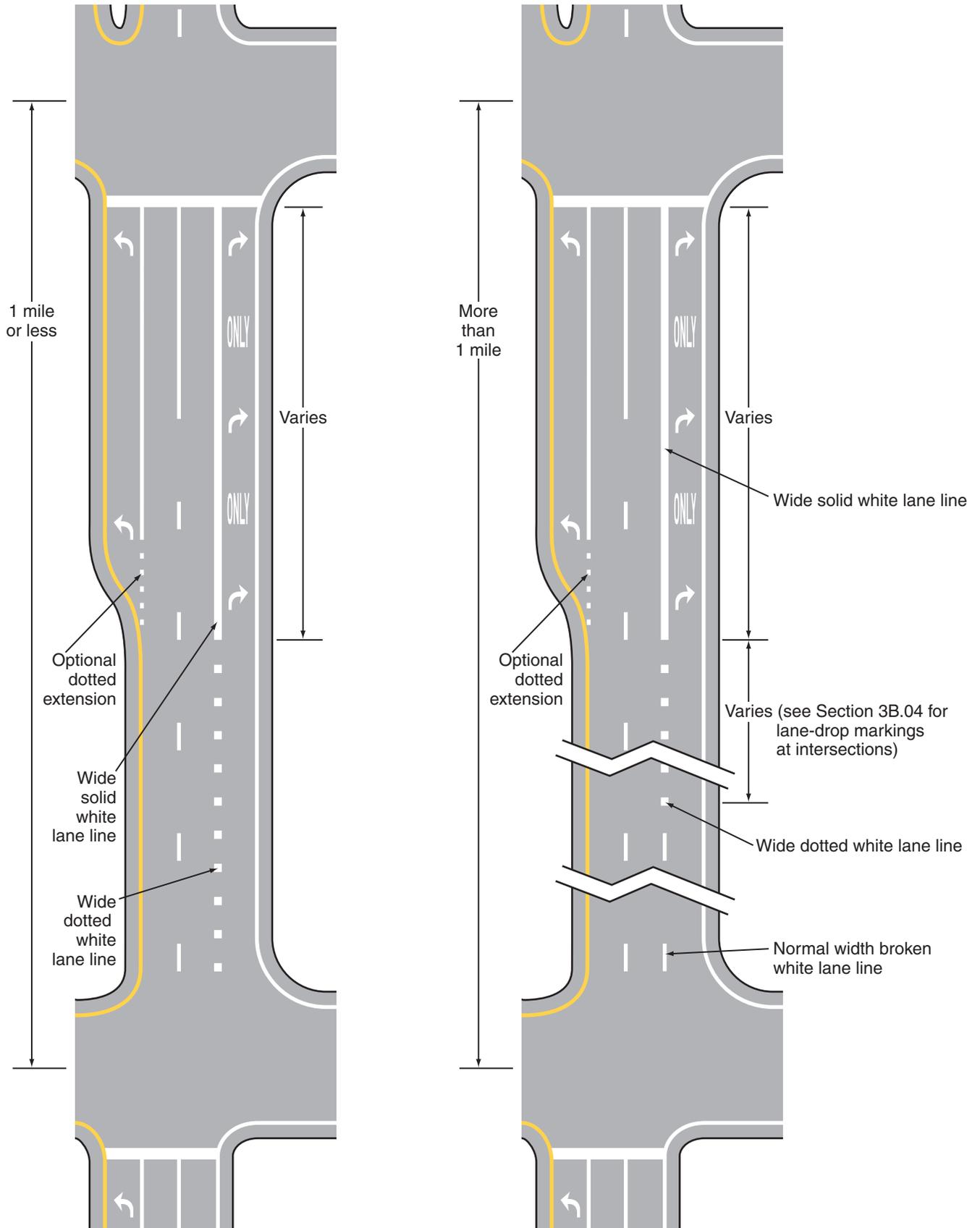


Figure 3B-11. Examples of Applications of Conventional Road Lane-Drop Markings
(Sheet 2 of 2)

B – Auxiliary lane between intersections



28 Solid white lane line markings may be used to separate through traffic lanes from auxiliary lanes, such as an added uphill truck lane or a preferential lane (see Section 3D.02).

29 Wide solid lane line markings may be used for greater emphasis.

Standard:

30 **Where crossing the lane line markings is prohibited, the lane line markings shall consist of a solid double white line (see Figure 3B-12).**

Section 3B.05 Other White Longitudinal Pavement Markings

Standard:

01 **A channelizing line shall be a wide or double solid white line.**

Option:

02 Channelizing lines may be used to form channelizing islands where traffic traveling in the same direction is permitted on both sides of the island.

Standard:

03 **Other pavement markings in the channelizing island area shall be white.**

Support:

04 Examples of channelizing line applications are shown in Figures 3B-8, 3B-9, and 3B-10, and in Drawing C of Figure 3B-15.

05 Channelizing lines at exit ramps as shown in Figures 3B-8 and 3B-10 define the neutral area, direct exiting traffic at the proper angle for smooth divergence from the main lanes into the ramp, and reduce the probability of colliding with objects adjacent to the roadway.

06 Channelizing lines at entrance ramps as shown in Figures 3B-9 and 3B-10 promote orderly and efficient merging with the through traffic.

Standard:

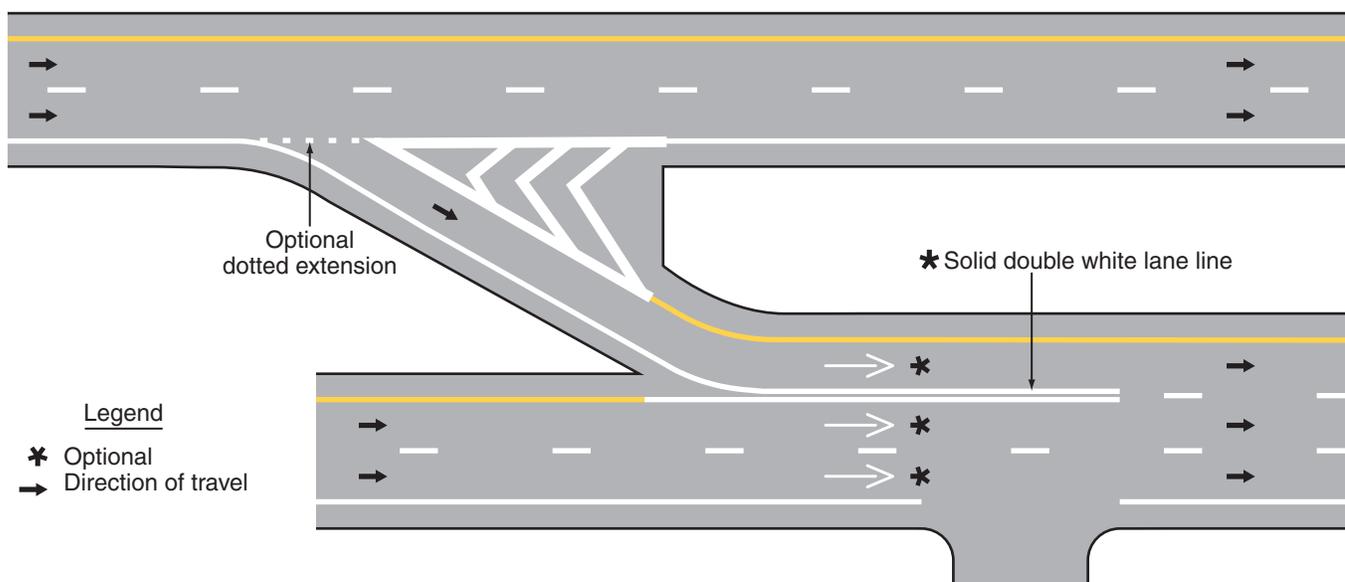
07 **For all exit ramps and for entrance ramps with parallel acceleration lanes, channelizing lines shall be placed on both sides of the neutral area (see Figures 3B-8 and 3B-10 and Drawing A of Figure 3B-9).**

08 **For entrance ramps with tapered acceleration lanes, channelizing lines shall be placed along both sides of the neutral area to a point at least one-half of the distance to the theoretical gore (see Drawing C of Figure 3B-9).**

Option:

09 For entrance ramps with tapered acceleration lanes, the channelizing lines may extend to the theoretical gore as shown in Drawing B of Figure 3B-9.

Figure 3B-12. Example of Solid Double White Lines Used to Prohibit Lane Changing



- 10 White chevron crosshatch markings (see Section 3B.24) may be placed in the neutral area of exit ramp and entrance ramp gores for special emphasis as shown in Figures 3B-8 and 3B-10 and Drawing A of Figure 3B-9. The channelizing lines and the optional chevron crosshatch markings at exit ramp and entrance ramp gores may be supplemented with white retroreflective or internally illuminated raised pavement markers (see Sections 3B.11 and 3B.13) for enhanced nighttime visibility.

Section 3B.06 Edge Line Pavement Markings

Standard:

- 01 **If used, edge line pavement markings shall delineate the right or left edges of a roadway.**
 02 **Except for dotted edge line extensions (see Section 3B.08), edge line markings shall not be continued through intersections or major driveways.**
 03 **If used on the roadways of divided highways or one-way streets, or on any ramp in the direction of travel, left edge line pavement markings shall consist of a normal solid yellow line to delineate the left-hand edge of a roadway or to indicate driving or passing restrictions left of these markings.**
 04 **If used, right edge line pavement markings shall consist of a normal solid white line to delineate the right-hand edge of the roadway.**

Guidance:

- 05 *Edge line markings should not be broken for minor driveways.*

Support:

- 06 Edge line markings have unique value as visual references to guide road users during adverse weather and visibility conditions.

Option:

- 07 Wide solid edge line markings may be used for greater emphasis.

Section 3B.07 Warrants for Use of Edge Lines

Standard:

- 01 **Edge line markings shall be placed on paved streets or highways with the following characteristics:**
 A. **Freeways,**
 B. **Expressways, and**
 C. **Rural arterials with a traveled way of 20 feet or more in width and an ADT of 6,000 vehicles per day or greater.**

Guidance:

- 02 *Edge line markings should be placed on paved streets or highways with the following characteristics:*
 A. *Rural arterials and collectors with a traveled way of 20 feet or more in width and an ADT of 3,000 vehicles per day or greater.*
 B. *At other paved streets and highways where an engineering study indicates a need for edge line markings.*
 03 *Edge line markings should not be placed where an engineering study or engineering judgment indicates that providing them is likely to decrease safety.*

Option:

- 04 Edge line markings may be placed on streets and highways with or without center line markings.
 05 Edge line markings may be excluded, based on engineering judgment, for reasons such as if the traveled way edges are delineated by curbs, parking, or other markings.
 06 If a bicycle lane is marked on the outside portion of the traveled way, the edge line that would mark the outside edge of the bicycle lane may be omitted.
 07 Edge line markings may be used where edge delineation is desirable to minimize unnecessary driving on paved shoulders or on refuge areas that have lesser structural pavement strength than the adjacent roadway.

Section 3B.08 Extensions Through Intersections or Interchanges

Standard:

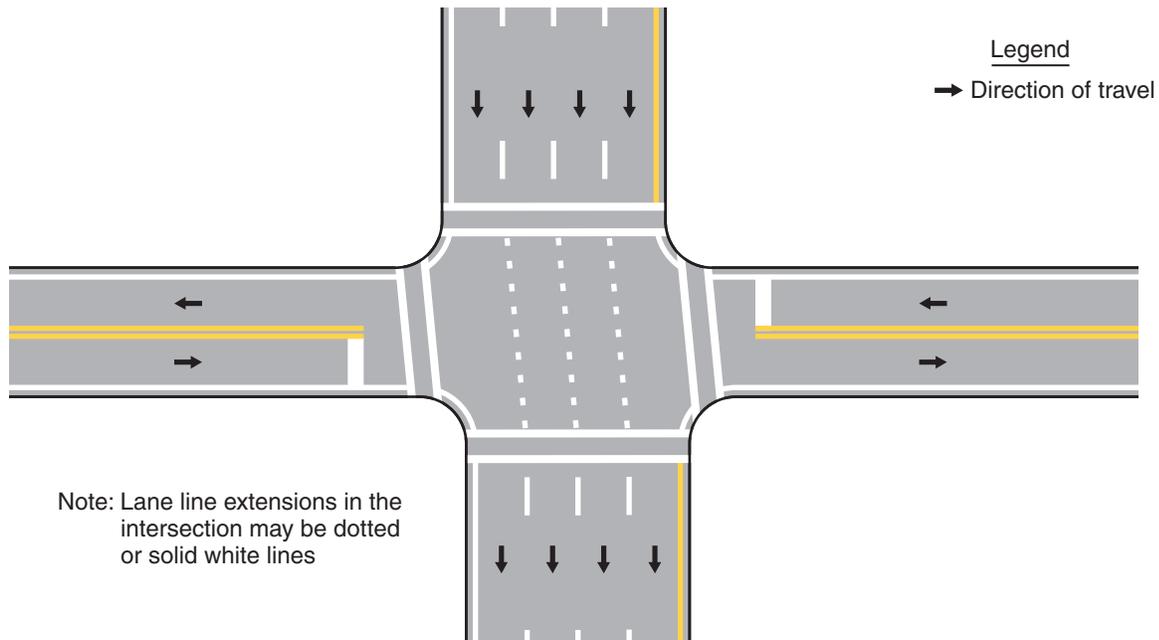
- 01 **Except as provided in Paragraph 2, pavement markings extended into or continued through an intersection or interchange area shall be the same color and at least the same width as the line markings they extend (see Figure 3B-13).**

Option:

- 02 A normal line may be used to extend a wide line through an intersection.

Figure 3B-13. Examples of Line Extensions through Intersections (Sheet 1 of 2)

A - Typical pavement markings with offset lane lines continued through the intersection and optional crosswalk lines and stop lines



B - Typical pavement markings with double-turn lanes, lane-use turn arrows, and optional crosswalk lines, stop lines, and line extensions into intersection for double turns

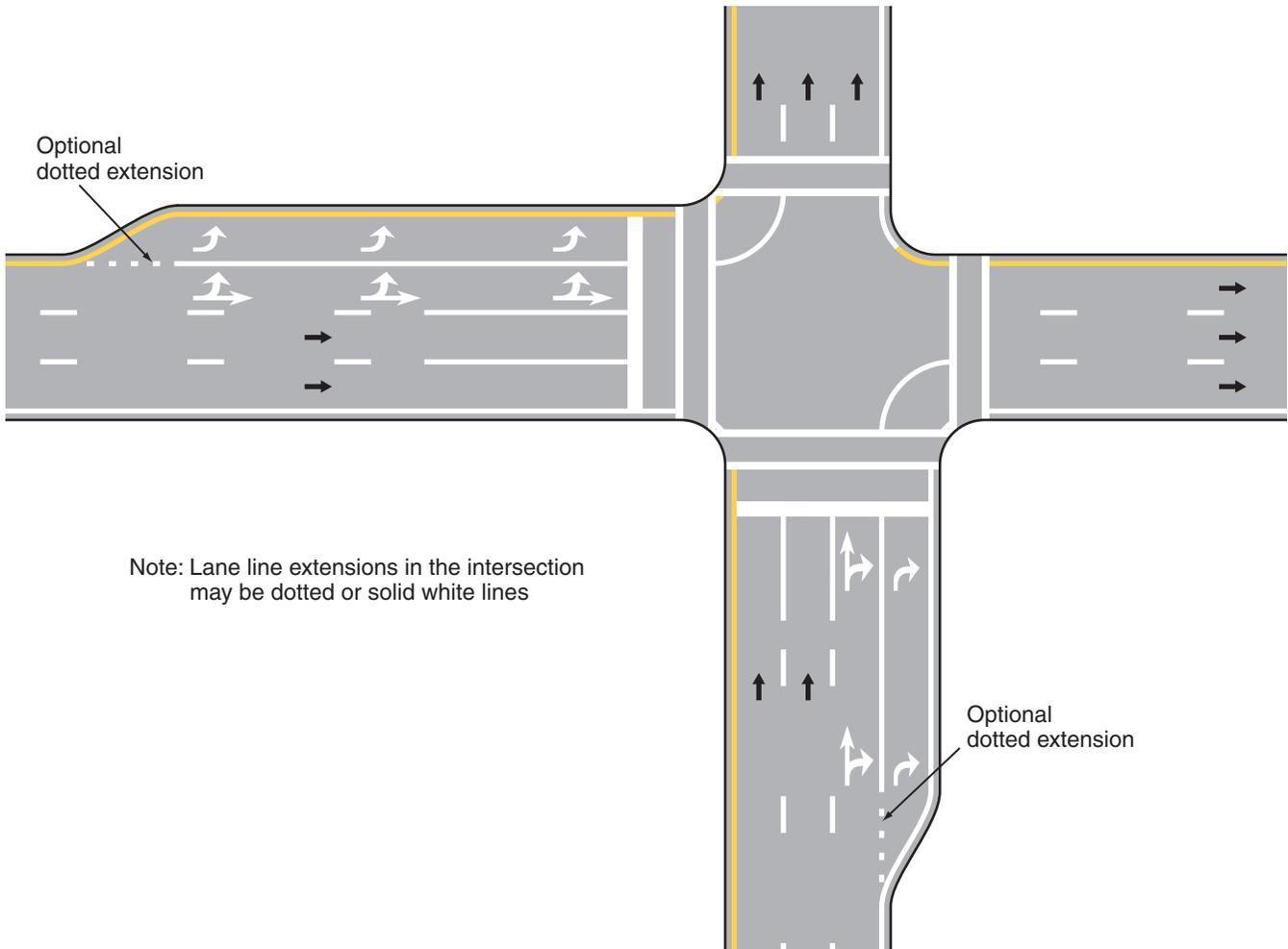
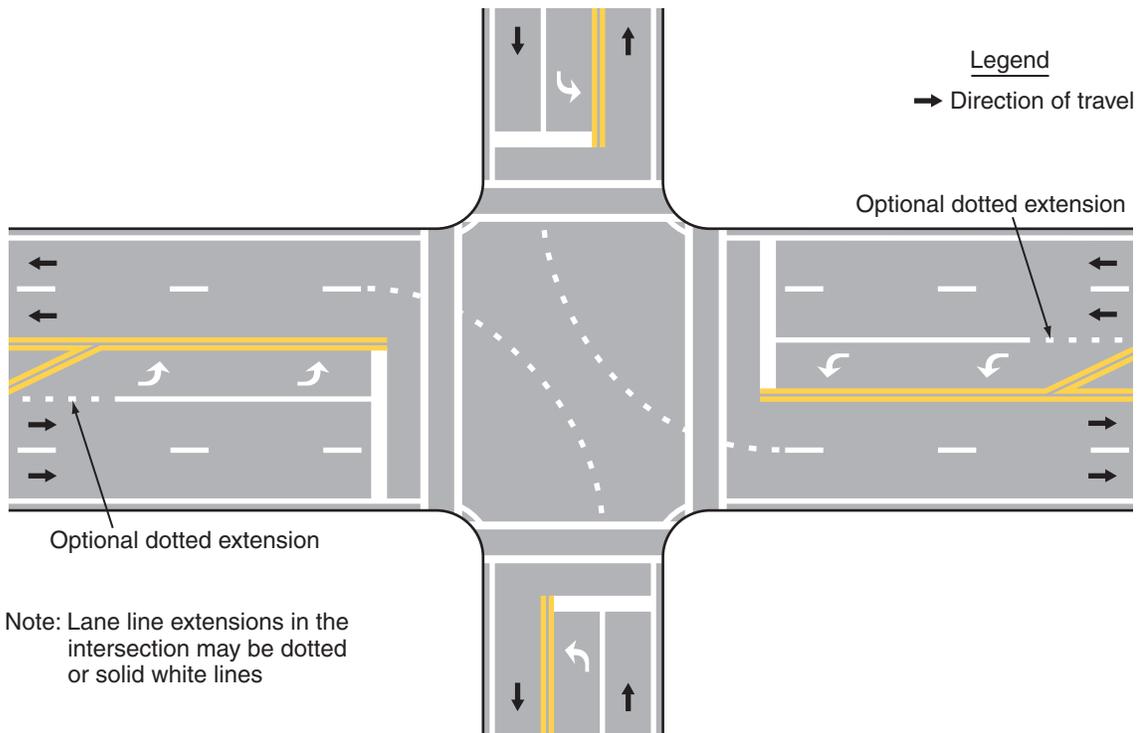
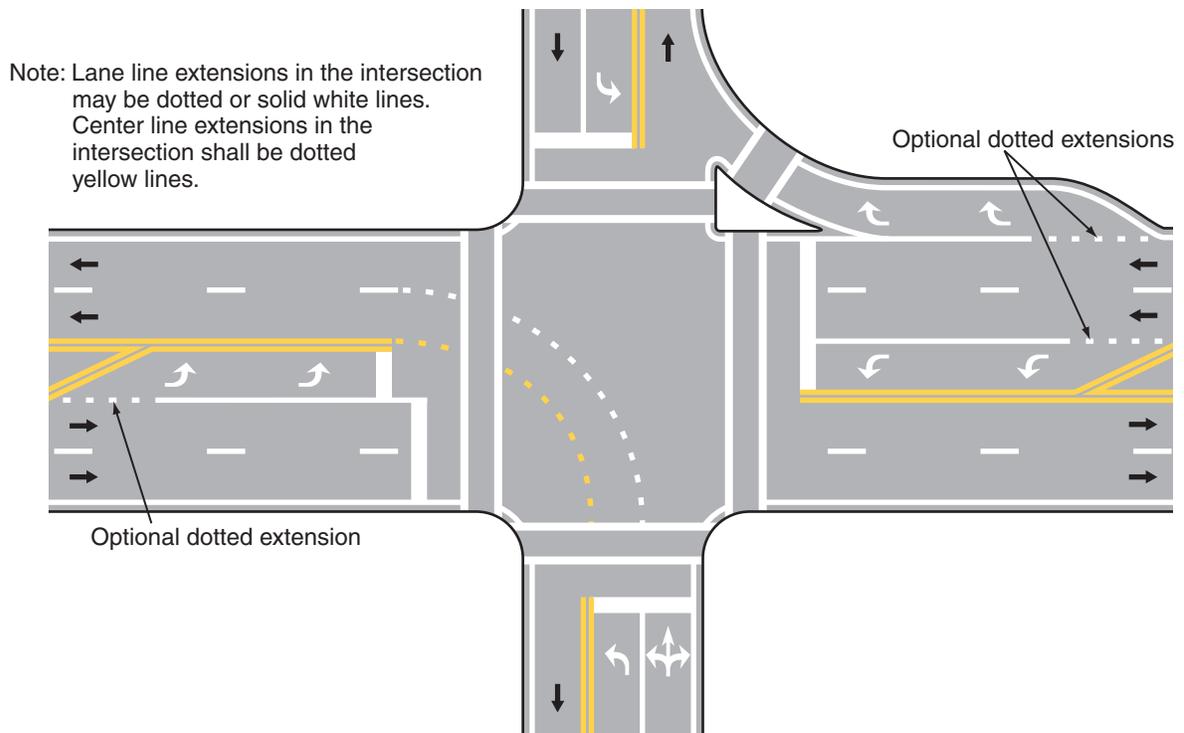


Figure 3B-13. Examples of Line Extensions through Intersections (Sheet 2 of 2)

C - Typical dotted line markings to extend lane line markings into the intersection



D - Typical dotted line markings to extend center line and lane line markings into the intersection



Guidance:

- 03 *Where highway design or reduced visibility conditions make it desirable to provide control or to guide vehicles through an intersection or interchange, such as at offset, skewed, complex, or multi-legged intersections, on curved roadways, where multiple turn lanes are used, or where offset left turn lanes might cause driver confusion, dotted line extension markings consisting of 2-foot line segments and 2- to 6-foot gaps should be used to extend longitudinal line markings through an intersection or interchange area.*

Option:

- 04 Dotted edge line extensions may be placed through intersections or major driveways.

Guidance:

- 05 *Where greater restriction is required, solid lane lines or channelizing lines should be extended into or continued through intersections or major driveways.*

Standard:

- 06 **Solid lines shall not be used to extend edge lines into or through intersections or major driveways.**

Guidance:

- 07 *Where a double line is extended through an intersection, a single line of equal width to one of the lines of the double line should be used.*
- 08 *To the extent possible, pavement marking extensions through intersections should be designed in a manner that minimizes potential confusion for drivers in adjacent or opposing lanes.*

Section 3B.09 Lane-Reduction Transition Markings*Support:*

- 01 Lane-reduction transition markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. Lane-reduction transition markings are not used for lane drops.

Standard:

- 02 **Except as provided in Paragraph 3, where pavement markings are used, lane-reduction transition markings shall be used to guide traffic through transition areas where the number of through lanes is reduced, as shown in Figure 3B-14. On two-way roadways, no-passing zone markings shall be used to prohibit passing in the direction of the convergence, and shall continue through the transition area.**

Option:

- 03 On low-speed urban roadways where curbs clearly define the roadway edge in the lane-reduction transition, or where a through lane becomes a parking lane, the edge line and/or delineators shown in Figure 3B-14 may be omitted as determined by engineering judgment.

Guidance:

- 04 *For roadways having a posted or statutory speed limit of 45 mph or greater, the transition taper length for a lane-reduction transition should be computed by the formula $L = WS$. For roadways where the posted or statutory speed limit is less than 45 mph, the formula $L = WS^2/60$ should be used to compute the taper length.*

Support:

- 05 Under both formulas, L equals the taper length in feet, W equals the width of the offset distance in feet, and S equals the 85th-percentile speed or the posted or statutory speed limit, whichever is higher.

Guidance:

- 06 *Where observed speeds exceed posted or statutory speed limits, longer tapers should be used.*

Option:

- 07 On new construction, where no posted or statutory speed limit has been established, the design speed may be used in the transition taper length formula.

Guidance:

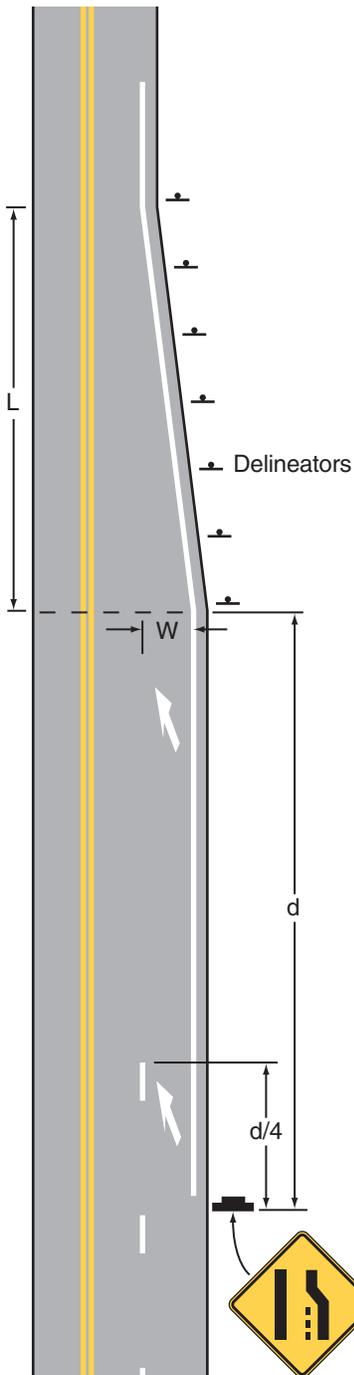
- 08 *Lane line markings should be discontinued one-quarter of the distance between the Lane Ends sign (see Section 2C.42) and the point where the transition taper begins.*
- 09 *Except as provided in Paragraph 3 for low-speed urban roadways, the edge line markings shown in Figure 3B-14 should be installed from the location of the Lane Ends warning sign to beyond the beginning of the narrower roadway.*

Support:

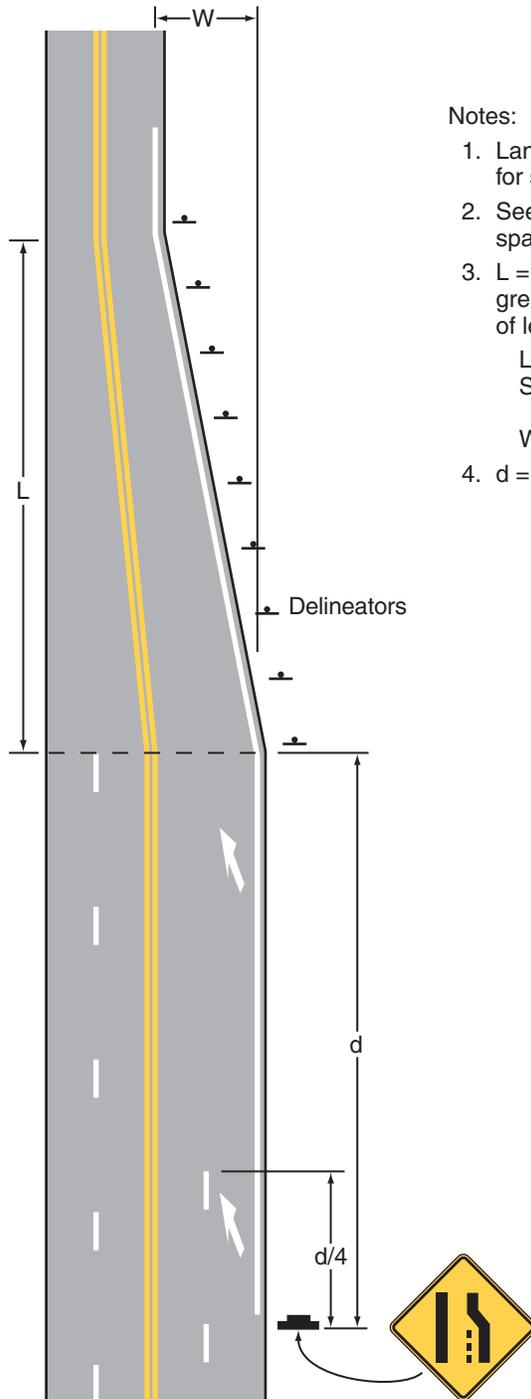
- 10 Pavement markings at lane-reduction transitions supplement the standard signs. See Section 3B.20 for provisions regarding use of lane-reduction arrows.

Figure 3B-14. Examples of Applications of Lane-Reduction Transition Markings

A – Lane reduction



B – Lane reduction with lateral shift to the left



Notes:

1. Lane-reduction arrows are optional for speeds of less than 45 mph
2. See Section 3F.04 for delineator spacing
3. $L = WS$ for speeds of 45 mph or greater and $L = WS^2/60$ for speeds of less than 45 mph, where:
 L = Length of taper in feet
 S = Posted, 85th-percentile, or statutory speed in mph
 W = Offset in feet
4. d = Advance warning distance (see Section 2C.05)

Section 3B.10 Approach Markings for Obstructions

Standard:

- 01 **Pavement markings shall be used to guide traffic away from fixed obstructions within a paved roadway. Approach markings for bridge supports, refuge islands, median islands, toll plaza islands, and raised channelization islands shall consist of a tapered line or lines extending from the center line or the lane line to a point 1 to 2 feet to the right-hand side, or to both sides, of the approach end of the obstruction (see Figure 3B-15).**

Support:

- 02 See Chapter 3E for additional information on approach markings for toll plaza islands.

Guidance:

- 03 *For roadways having a posted or statutory speed limit of 45 mph or greater, the taper length of the tapered line markings should be computed by the formula $L = WS$. For roadways where the posted or statutory speed limit is less than 45 mph, the formula $L = WS^2/60$ should be used to compute the taper length.*

Support:

- 04 Under both formulas, L equals the taper length in feet, W equals the width of the offset distance in feet, and S equals the 85th-percentile speed or the posted or statutory speed limit, whichever is higher.

Guidance:

- 05 *The minimum taper length should be 100 feet in urban areas and 200 feet in rural areas.*

Support:

- 06 Examples of approach markings for obstructions in the roadway are shown in Figure 3B-15.

Standard:

- 07 **If traffic is required to pass only to the right of the obstruction, the markings shall consist of a two-direction no-passing zone marking at least twice the length of the diagonal portion as determined by the appropriate taper formula (see Drawing A of Figure 3B-15).**

Option:

- 08 If traffic is required to pass only to the right of the obstruction, yellow diagonal crosshatch markings (see Section 3B.24) may be placed in the flush median area between the no-passing zone markings as shown in Drawings A and B of Figure 3B-15. Other markings, such as yellow delineators, yellow channelizing devices, yellow raised pavement markers, and white crosswalk pavement markings, may also be placed in the flush median area.

Standard:

- 09 **If traffic can pass either to the right or left of the obstruction, the markings shall consist of two channelizing lines diverging from the lane line, one to each side of the obstruction. In advance of the point of divergence, a wide solid white line or normal solid double white line shall be extended in place of the broken lane line for a distance equal to the length of the diverging lines (see Drawing C of Figure 3B-15).**

Option:

- 10 If traffic can pass either to the right or left of the obstruction, additional white chevron crosshatch markings (see Section 3B.24) may be placed in the flush median area between the channelizing lines as shown in Drawing C of Figure 3B-15. Other markings, such as white delineators, white channelizing devices, white raised pavement markers, and white crosswalk markings may also be placed in the flush median area.

Section 3B.11 Raised Pavement Markers – General

Standard:

- 01 **The color of raised pavement markers under both daylight and nighttime conditions shall conform to the color of the marking for which they serve as a positioning guide, or for which they supplement or substitute.**

Option:

- 02 The side of a raised pavement marker that is visible to traffic proceeding in the wrong direction may be red (see Section 3A.05).

- 03 Retroreflective or internally illuminated raised pavement markers may be used in the roadway immediately adjacent to curbed approach ends of raised medians and curbs of islands, or on top of such curbs (see Section 3B.23).

Figure 3B-15. Examples of Applications of Markings for Obstructions in the Roadway
(Sheet 1 of 2)

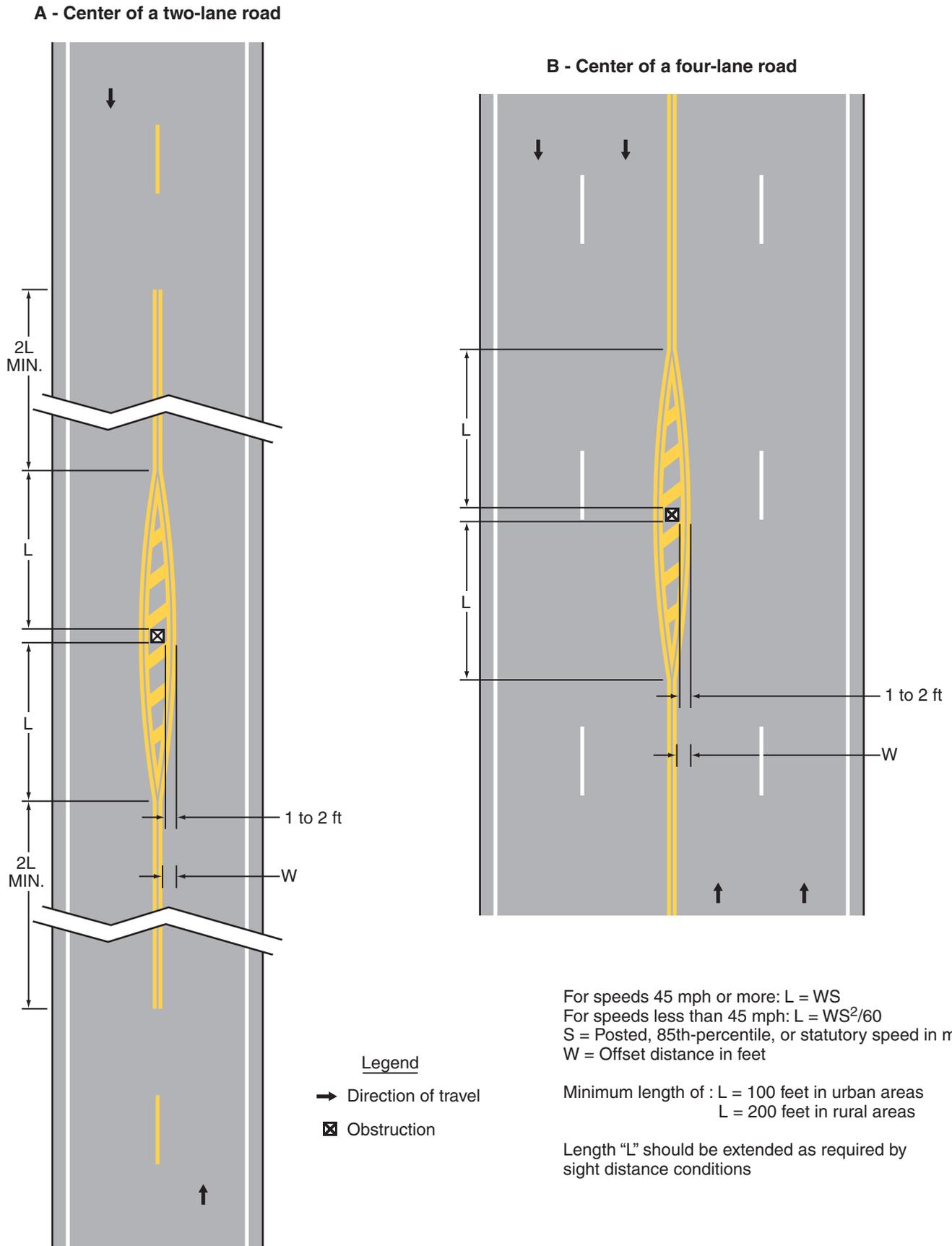
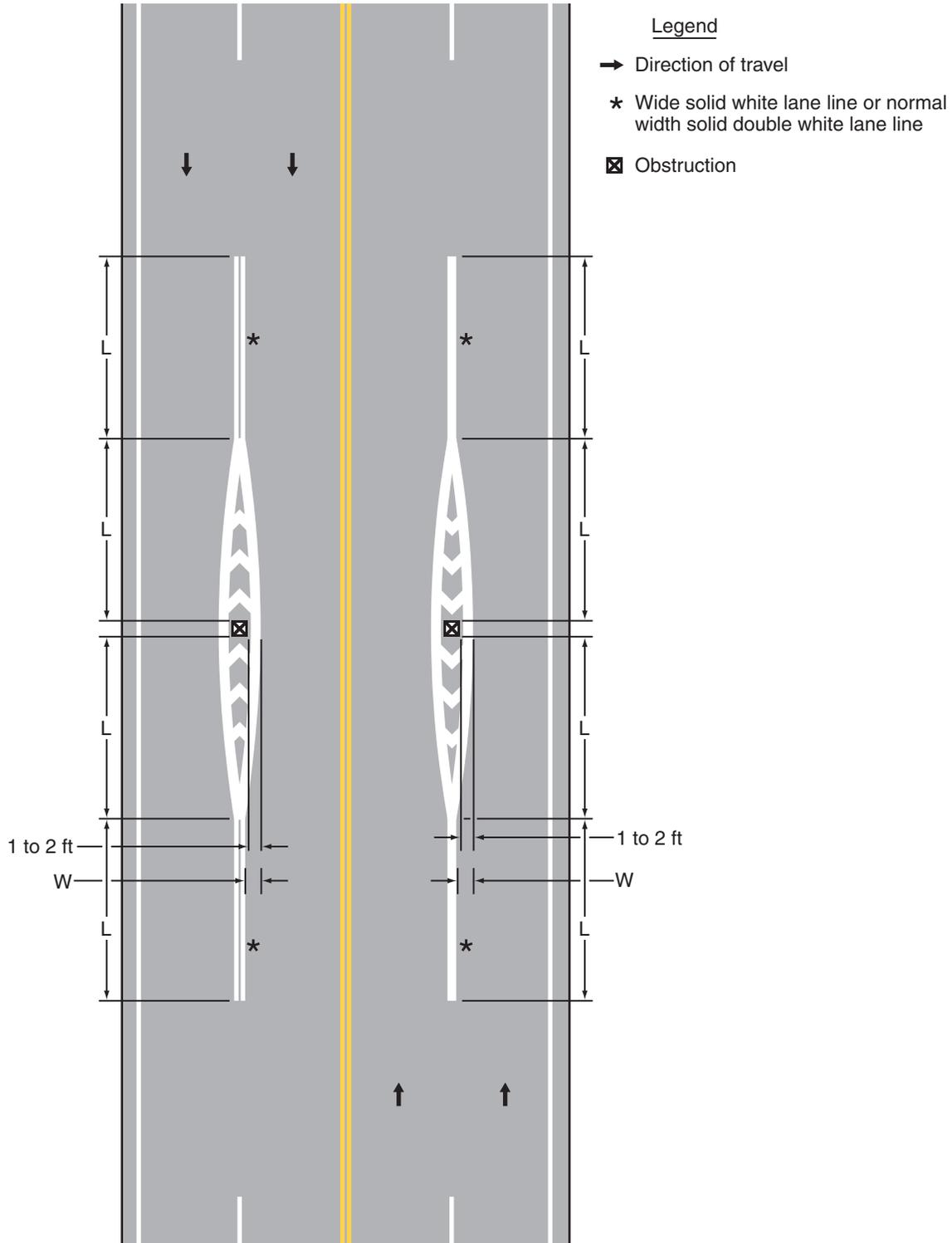


Figure 3B-15. Examples of Applications of Markings for Obstructions in the Roadway
(Sheet 2 of 2)

C - Traffic passing in the same direction on both sides of an obstruction



For speeds of 45 mph or more: $L = WS$
 For speeds of less than 45 mph: $L = WS^2/60$
 S = Posted, 85th-percentile, or statutory speed in mph
 W = Offset distance in feet

Minimum length of: L = 100 feet in urban areas
 L = 200 feet in rural areas

Length "L" should be extended as required by sight distance conditions

Support:

04 Retroreflective and internally illuminated raised pavement markers are available in mono-directional and bidirectional configurations. The bidirectional marker is capable of displaying the applicable color for each direction of travel.

05 Blue raised pavement markers are sometimes used in the roadway to help emergency personnel locate fire hydrants.

Standard:

06 **When used, internally illuminated raised pavement markers shall be steadily illuminated and shall not be flashed.**

Support:

07 Flashing raised pavement markers are considered to be In-Roadway Lights (see Chapter 4N).

Guidance:

08 *Non-retroreflective raised pavement markers should not be used alone, without supplemental retroreflective or internally illuminated markers, as a substitute for other types of pavement markings.*

09 *Directional configurations should be used to maximize correct information and to minimize confusing information provided to the road user. Directional configurations also should be used to avoid confusion resulting from visibility of markers that do not apply to the road user.*

10 *The spacing of raised pavement markers used to supplement or substitute for other types of longitudinal markings should correspond with the pattern of broken lines for which the markers supplement or substitute.*

Standard:

11 **The value of N cited in Sections 3B.12 through 3B.14 for the spacing of raised pavement markers shall equal the length of one line segment plus one gap of the broken lines used on the highway.**

Option:

12 For additional emphasis, retroreflective raised pavement markers may be spaced closer than described in Sections 3B.12 through 3B.14, as determined by engineering judgment or engineering study.

Support:

13 Figures 9-20 through 9-22 in the “Traffic Control Devices Handbook” (see Section 1A.11) contain additional information regarding the spacing of raised pavement markers on longitudinal markings.

Section 3B.12 Raised Pavement Markers as Vehicle Positioning Guides with Other Longitudinal Markings

Option:

01 Retroreflective or internally illuminated raised pavement markers may be used as positioning guides with longitudinal line markings without necessarily conveying information to the road user about passing or lane-use restrictions. In such applications, markers may be positioned in line with or immediately adjacent to a single line marking, or positioned between the two lines of a double center line or double lane line marking.

Guidance:

02 *The spacing for such applications should be $2N$, where N equals the length of one line segment plus one gap (see Section 3B.11).*

Option:

03 Where it is desired to alert the road user to changes in the travel path, such as on sharp curves or on transitions that reduce the number of lanes or that shift traffic laterally, the spacing may be reduced to N or less.

04 On freeways and expressways, the spacing may be increased to $3N$ for relatively straight and level roadway segments where engineering judgment indicates that such spacing will provide adequate delineation under wet night conditions.

Section 3B.13 Raised Pavement Markers Supplementing Other Markings

Guidance:

01 *The use of retroreflective or internally illuminated raised pavement markers for supplementing longitudinal line markings should comply with the following:*

A. Lateral Positioning

1. *When supplementing double line markings, pairs of raised pavement markers placed laterally in line with or immediately outside of the two lines should be used.*
2. *When supplementing wide line markings, pairs of raised pavement markers placed laterally adjacent to each other should be used.*

B. Longitudinal Spacing

1. When supplementing solid line markings, raised pavement markers at a spacing no greater than N (see Section 3B.11) should be used, except that when supplementing channelizing lines or edge line markings, a spacing of no greater than $N/2$ should be used.
2. When supplementing broken line markings, a spacing no greater than $3N$ should be used. However, when supplementing broken line markings identifying reversible lanes, a spacing of no greater than N should be used.
3. When supplementing dotted lane line markings, a spacing appropriate for the application should be used.
4. When supplementing longitudinal line extension markings through at-grade intersections, one raised pavement marker for each short line segment should be used.
5. When supplementing line extensions through freeway interchanges, a spacing of no greater than N should be used.

02 *Raised pavement markers should not supplement right-hand edge lines unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge is close enough to avoid misinterpretation as a broken line during wet night conditions.*

Option:

- 03 Raised pavement markers also may be used to supplement other markings such as channelizing islands, gore areas, approaches to obstructions, or wrong-way arrows.
- 04 To improve the visibility of horizontal curves, center lines may be supplemented with retroreflective or internally illuminated raised pavement markers for the entire curved section as well as for a distance in advance of the curve that approximates 5 seconds of travel time.

Section 3B.14 Raised Pavement Markers Substituting for Pavement Markings

Option:

- 01 Retroreflective or internally illuminated raised pavement markers, or non-retroreflective raised pavement markers supplemented by retroreflective or internally illuminated markers, may be substituted for markings of other types.

Guidance:

- 02 *If used, the pattern of the raised pavement markers should simulate the pattern of the markings for which they substitute.*

Standard:

- 03 **If raised pavement markers are used to substitute for broken line markings, a group of three to five markers equally spaced at a distance no greater than $N/8$ (see Section 3B.11) shall be used. If N is other than 40 feet, the markers shall be equally spaced over the line segment length (at $1/2$ points for three markers, at $1/3$ points for four markers, and at $1/4$ points for five markers). At least one retroreflective or internally illuminated marker per group shall be used or a retroreflective or internally illuminated marker shall be installed midway in each gap between successive groups of non-retroreflective markers.**
- 04 **When raised pavement markers substitute for solid line markings, the markers shall be equally spaced at no greater than $N/4$, with retroreflective or internally illuminated units at a spacing no greater than $N/2$.**

Guidance:

- 05 *Raised pavement markers should not substitute for right-hand edge line markings unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge line is close enough to avoid misinterpretation as a broken line during wet night conditions.*

Standard:

- 06 **When raised pavement markers substitute for dotted lines, they shall be spaced at no greater than $N/4$, with not less than one raised pavement marker per dotted line segment. At least one raised marker every N shall be retroreflective or internally illuminated.**

Option:

- 07 When substituting for wide lines, raised pavement markers may be placed laterally adjacent to each other to simulate the width of the line.

Section 3B.15 Transverse Markings

Standard:

- 01 **Transverse markings, which include shoulder markings, word and symbol markings, arrows, stop lines, yield lines, crosswalk lines, speed measurement markings, speed reduction markings, speed hump markings, parking space markings, and others, shall be white unless otherwise provided in this Manual.**

Guidance:

- 02 *Because of the low approach angle at which pavement markings are viewed, transverse lines should be proportioned to provide visibility at least equal to that of longitudinal lines.*

Section 3B.16 Stop and Yield Lines

Guidance:

- 01 *Stop lines should be used to indicate the point behind which vehicles are required to stop in compliance with a traffic control signal.*

Option:

- 02 Stop lines may be used to indicate the point behind which vehicles are required to stop in compliance with a STOP (R1-1) sign, a Stop Here For Pedestrians (R1-5b or R1-5c) sign, or some other traffic control device that requires vehicles to stop, except YIELD signs that are not associated with passive grade crossings.
- 03 Yield lines may be used to indicate the point behind which vehicles are required to yield in compliance with a YIELD (R1-2) sign or a Yield Here To Pedestrians (R1-5 or R1-5a) sign.

Standard:

- 04 **Except as provided in Section 8B.28, stop lines shall not be used at locations where drivers are required to yield in compliance with a YIELD (R1-2) sign or a Yield Here To Pedestrians (R1-5 or R1-5a) sign or at locations on uncontrolled approaches where drivers are required by State law to yield to pedestrians.**
- 05 **Yield lines shall not be used at locations where drivers are required to stop in compliance with a STOP (R1-1) sign, a Stop Here For Pedestrians (R1-5b or R1-5c) sign, a traffic control signal, or some other traffic control device.**
- 06 **Stop lines shall consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made.**
- 07 **Yield lines (see Figure 3B-16) shall consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made.**

Guidance:

- 08 *Stop lines should be 12 to 24 inches wide.*
- 09 *The individual triangles comprising the yield line should have a base of 12 to 24 inches wide and a height equal to 1.5 times the base. The space between the triangles should be 3 to 12 inches.*
- 10 *If used, stop and yield lines should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections, except for yield lines at roundabouts as provided for in Section 3C.04 and at midblock crosswalks. In the absence of a marked crosswalk, the stop line or yield line should be placed at the desired stopping or yielding point, but should not be placed more than 30 feet or less than 4 feet from the nearest edge of the intersecting traveled way.*
- 11 *Stop lines at midblock signalized locations should be placed at least 40 feet in advance of the nearest signal indication (see Section 4D.14).*
- 12 *If yield or stop lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, the yield lines or stop lines should be placed 20 to 50 feet in advance of the nearest crosswalk line, and parking should be prohibited in the area between the yield or stop line and the crosswalk (see Figure 3B-17).*

Standard:

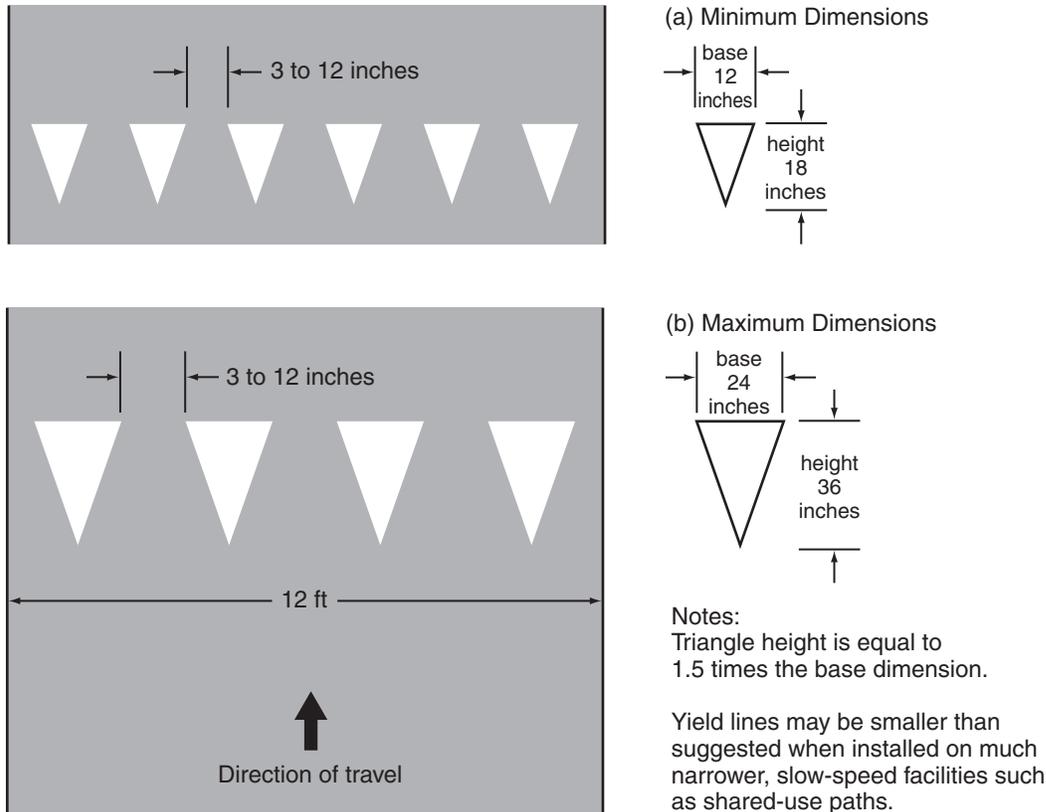
- 13 **If yield (stop) lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, Yield Here To (Stop Here For) Pedestrians (R1-5 series) signs (see Section 2B.11) shall be used.**

Guidance:

- 14 *Yield (stop) lines and Yield Here To (Stop Here For) Pedestrians signs should not be used in advance of crosswalks that cross an approach to or departure from a roundabout.*

Support:

- 15 When drivers yield or stop too close to crosswalks that cross uncontrolled multi-lane approaches, they place pedestrians at risk by blocking other drivers' views of pedestrians and by blocking pedestrians' views of vehicles approaching in the other lanes.

Figure 3B-16. Recommended Yield Line Layouts**Option:**

- 16 Stop and yield lines may be staggered longitudinally on a lane-by-lane basis (see Drawing D of Figure 3B-13).

Support:

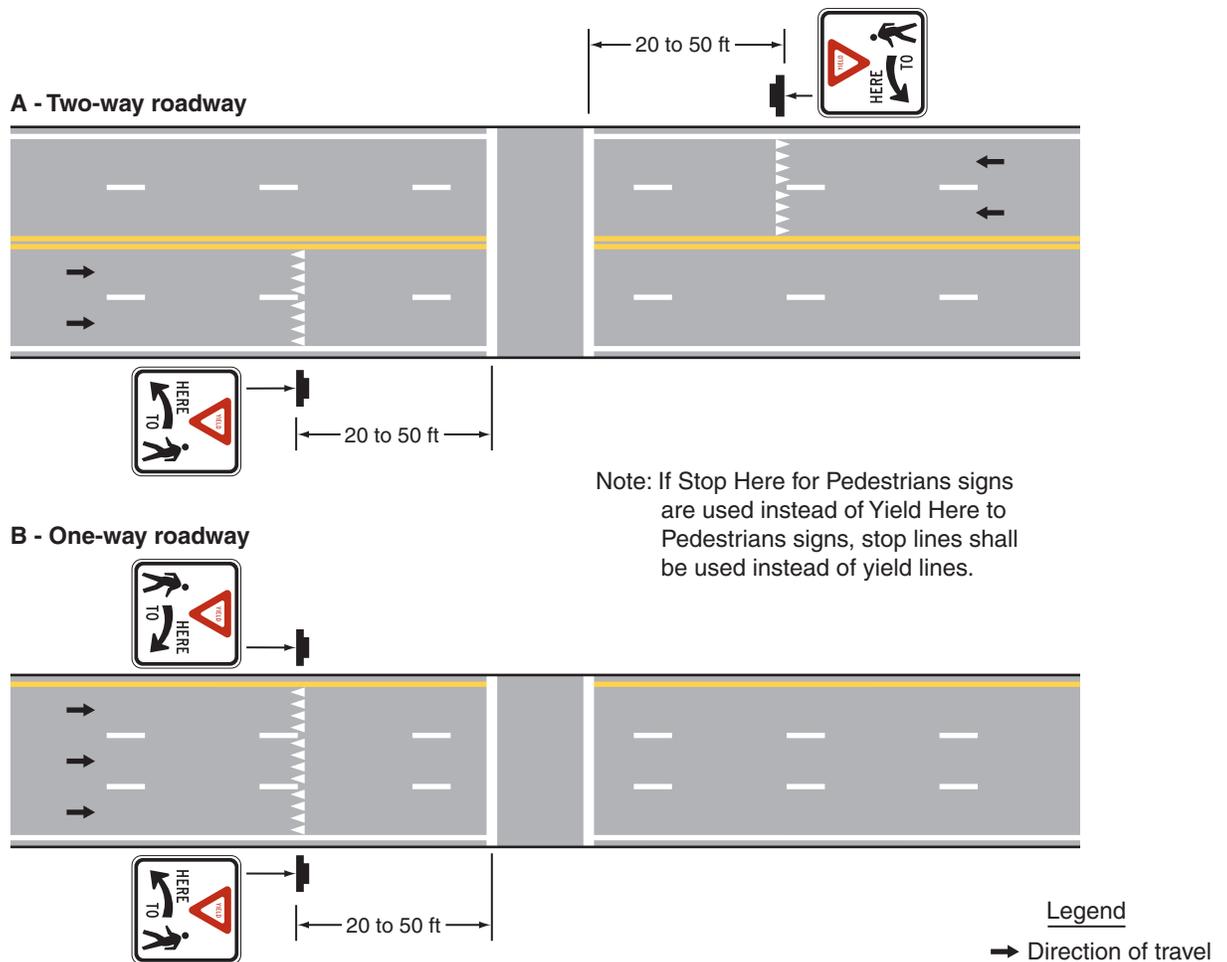
- 17 Staggered stop lines and staggered yield lines can improve the driver's view of pedestrians, provide better sight distance for turning vehicles, and increase the turning radius for left-turning vehicles.
- 18 Section 8B.28 contains information regarding the use of stop lines and yield lines at grade crossings.

Section 3B.17 Do Not Block Intersection Markings**Option:**

- 01 Do Not Block Intersection markings may be used to mark the edges of an intersection area that is in close proximity to a signalized intersection, railroad crossing, or other nearby traffic control that might cause vehicles to stop within the intersection and impede other traffic entering the intersection. If authorized by law, Do Not Block Intersection markings with appropriate signs may also be used at other locations.

Standard:

- 02 **If used, Do Not Block Intersection markings (see Figure 3B-18) shall consist of one of the following alternatives:**
- A. Wide solid white lines that outline the intersection area that vehicles must not block;
 - B. Wide solid white lines that outline the intersection area that vehicles must not block and a white word message such as DO NOT BLOCK or KEEP CLEAR;
 - C. Wide solid white lines that outline the intersection area that vehicles must not block and white cross-hatching within the intersection area; or
 - D. A white word message, such as DO NOT BLOCK or KEEP CLEAR, within the intersection area that vehicles must not block.
- 03 **Do Not Block Intersection markings shall be accompanied by one or more DO NOT BLOCK INTERSECTION (DRIVEWAY) (CROSSING) (R10-7) signs (see Section 2B.53), one or more DO NOT STOP ON TRACKS (R8-8) signs (see Section 8B.09), or one or more similar signs.**

Figure 3B-17. Examples of Yield Lines at Unsignalized Midblock Crosswalks**Section 3B.18 Crosswalk Markings**

Support:

- 01 Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops.
- 02 In conjunction with signs and other measures, crosswalk markings help to alert road users of a designated pedestrian crossing point across roadways at locations that are not controlled by traffic control signals or STOP or YIELD signs.
- 03 At non-intersection locations, crosswalk markings legally establish the crosswalk.

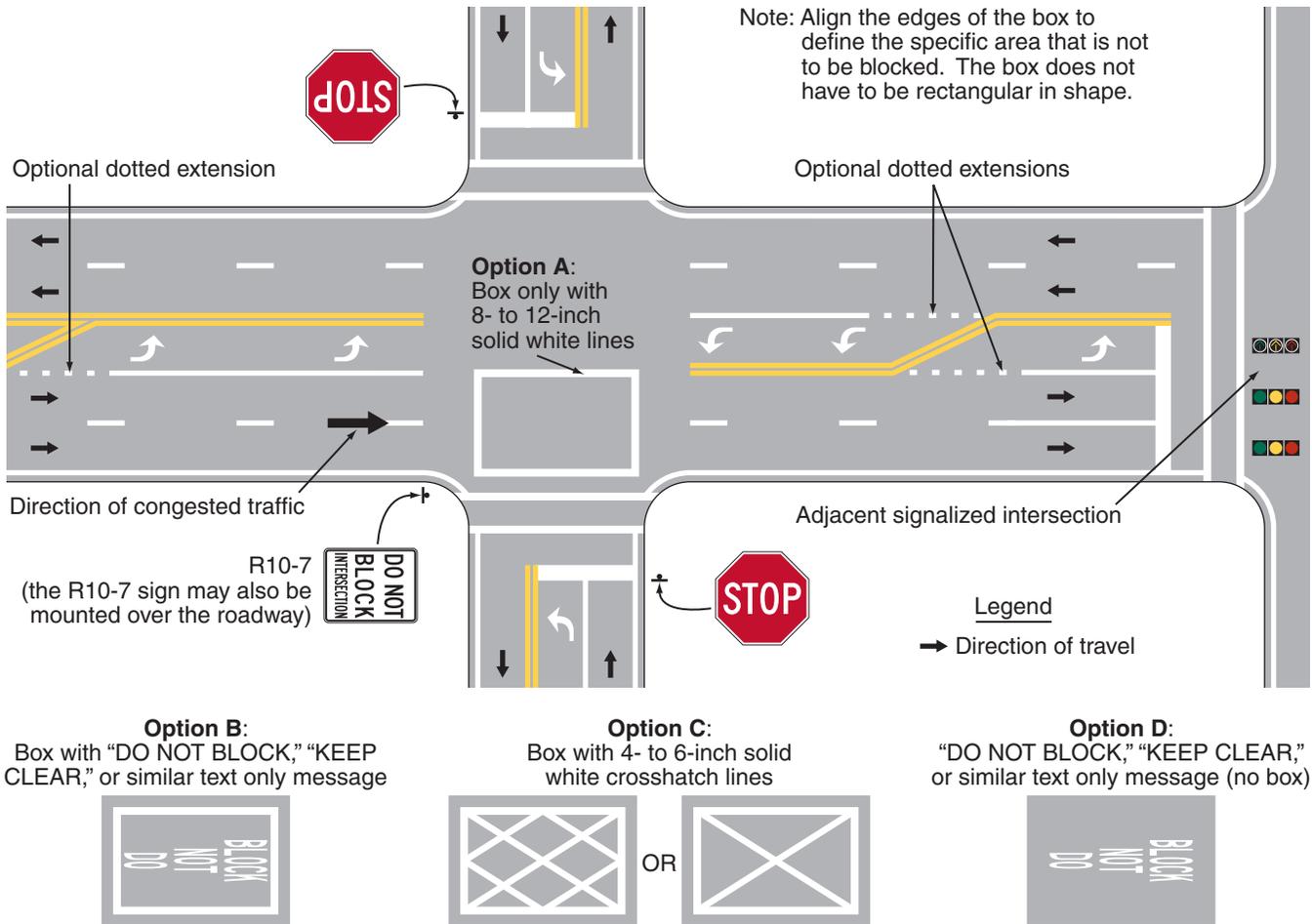
Standard:

- 04 **When crosswalk lines are used, they shall consist of solid white lines that mark the crosswalk. They shall not be less than 6 inches or greater than 24 inches in width.**

Guidance:

- 05 *If transverse lines are used to mark a crosswalk, the gap between the lines should not be less than 6 feet. If diagonal or longitudinal lines are used without transverse lines to mark a crosswalk, the crosswalk should be not less than 6 feet wide.*
- 06 *Crosswalk lines, if used on both sides of the crosswalk, should extend across the full width of pavement or to the edge of the intersecting crosswalk to discourage diagonal walking between crosswalks (see Figures 3B-17 and 3B-19).*
- 07 *At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk lines should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).*

Figure 3B-18. Do Not Block Intersection Markings

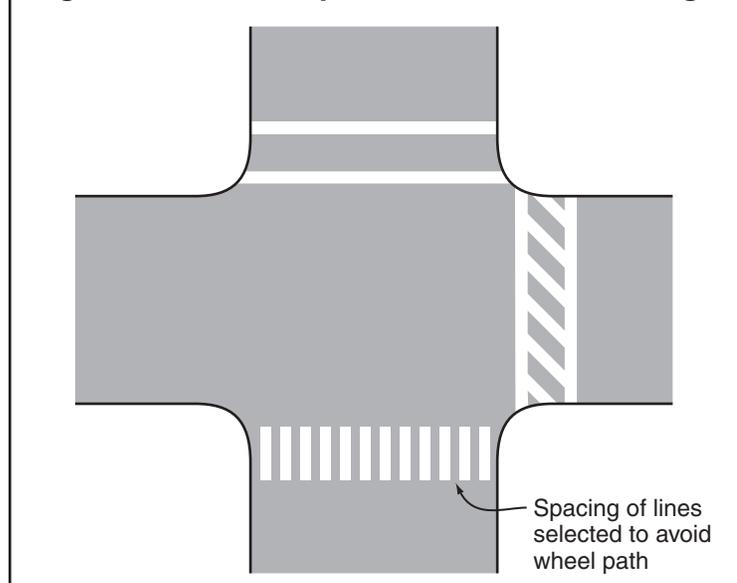


08 *Crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.*

09 *New marked crosswalks alone, without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and either:*

- A. *The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or*
- B. *The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.*

Figure 3B-19. Examples of Crosswalk Markings



Support:

- 10 Chapter 4F contains information on Pedestrian Hybrid Beacons. Section 4L.03 contains information regarding Warning Beacons to provide active warning of a pedestrian's presence. Section 4N.02 contains information regarding In-Roadway Warning Lights at crosswalks. Chapter 7D contains information regarding school crossing supervision.

Guidance:

- 11 *Because non-intersection pedestrian crossings are generally unexpected by the road user, warning signs (see Section 2C.50) should be installed for all marked crosswalks at non-intersection locations and adequate visibility should be provided by parking prohibitions.*

Support:

- 12 Section 3B.16 contains information regarding placement of stop line markings near crosswalk markings.

Option:

- 13 For added visibility, the area of the crosswalk may be marked with white diagonal lines at a 45-degree angle to the line of the crosswalk or with white longitudinal lines parallel to traffic flow as shown in Figure 3B-19.

- 14 When diagonal or longitudinal lines are used to mark a crosswalk, the transverse crosswalk lines may be omitted. This type of marking may be used at locations where substantial numbers of pedestrians cross without any other traffic control device, at locations where physical conditions are such that added visibility of the crosswalk is desired, or at places where a pedestrian crosswalk might not be expected.

Guidance:

- 15 *If used, the diagonal or longitudinal lines should be 12 to 24 inches wide and separated by gaps of 12 to 60 inches. The design of the lines and gaps should avoid the wheel paths if possible, and the gap between the lines should not exceed 2.5 times the width of the diagonal or longitudinal lines.*

Option:

- 16 When an exclusive pedestrian phase that permits diagonal crossing of an intersection is provided at a traffic control signal, a marking as shown in Figure 3B-20 may be used for the crosswalk.

Guidance:

- 17 *Crosswalk markings should be located so that the curb ramps are within the extension of the crosswalk markings.*

Support:

- 18 Detectable warning surfaces mark boundaries between pedestrian and vehicular ways where there is no raised curb. Detectable warning surfaces are required by 49 CFR, Part 37 and by the Americans with Disabilities Act (ADA) where curb ramps are constructed at the junction of sidewalks and the roadway, for marked and unmarked crosswalks. Detectable warning surfaces contrast visually with adjacent walking surfaces, either light-on-dark, or dark-on-light. The "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11) contains specifications for design and placement of detectable warning surfaces.

Section 3B.19 Parking Space Markings**Support:**

- 01 Marking of parking space boundaries encourages more orderly and efficient use of parking spaces where parking turnover is substantial. Parking space markings tend to prevent encroachment into fire hydrant zones, bus stops, loading zones, approaches to intersections, curb ramps, and clearance spaces for islands and other zones where parking is restricted. Examples of parking space markings are shown in Figure 3B-21.

Standard:

- 02 **Parking space markings shall be white.**

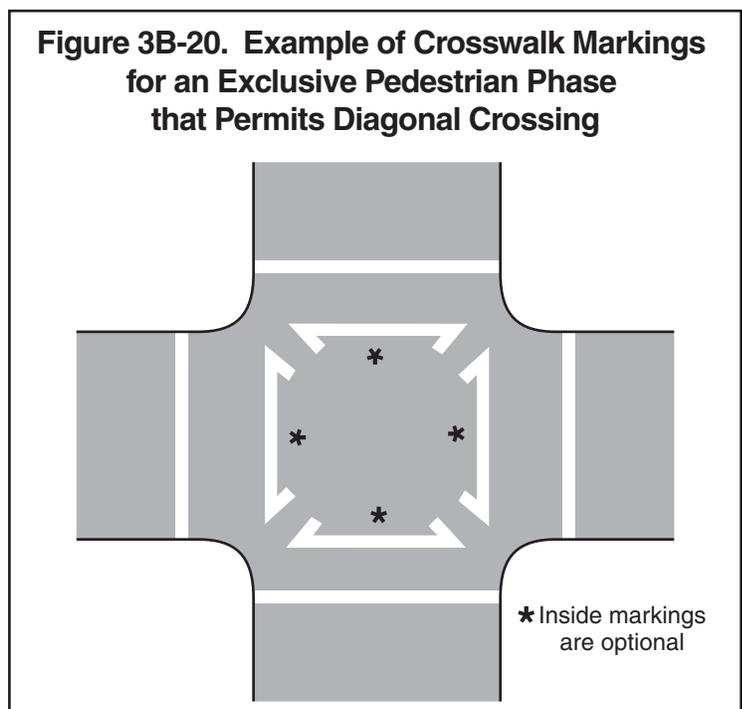
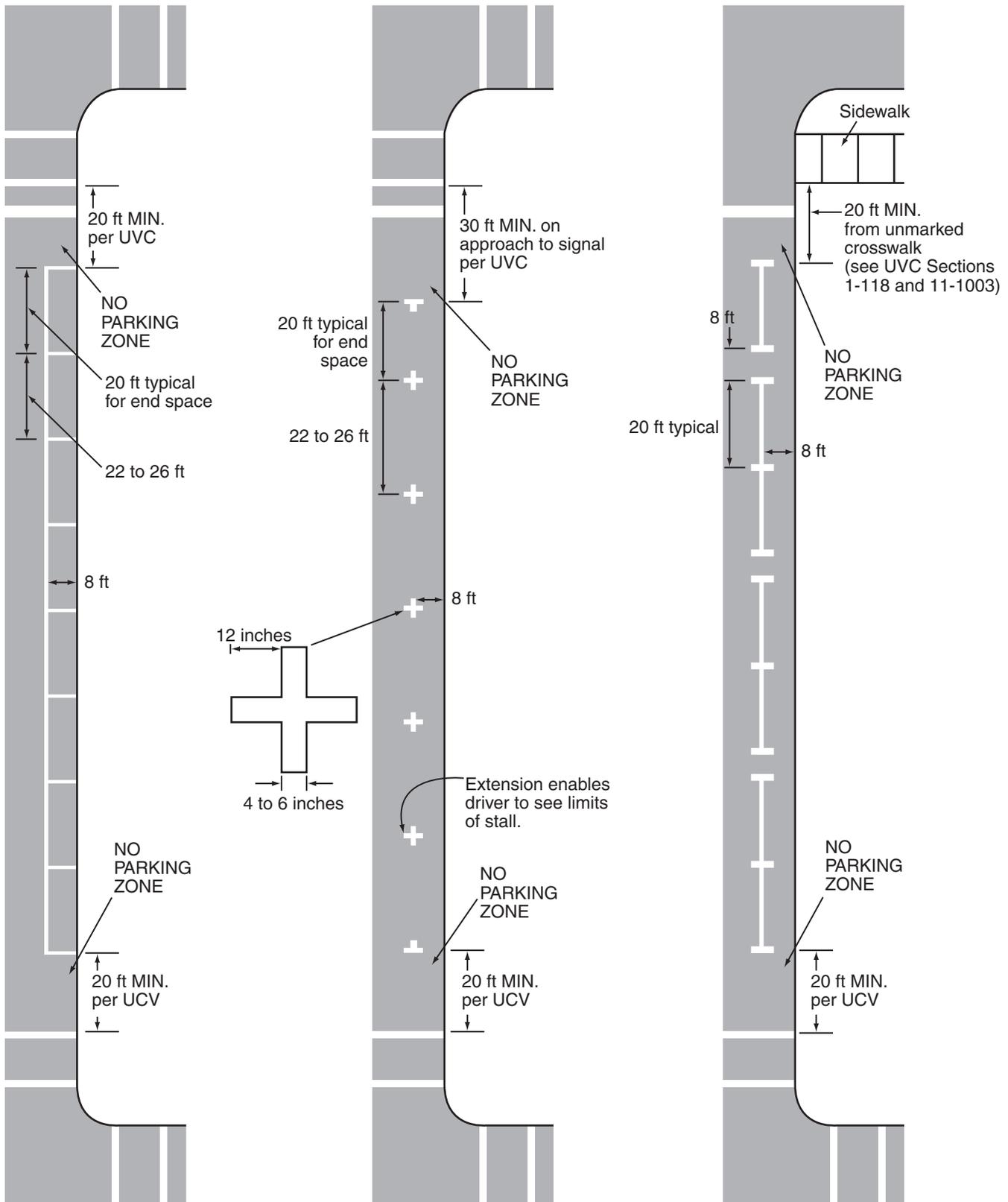


Figure 3B-21. Examples of Parking Space Markings



Option:

- 03 Blue lines may supplement white parking space markings of each parking space designated for use only by persons with disabilities.

Support:

- 04 Additional parking space markings for the purpose of designating spaces for use only by persons with disabilities are discussed in Section 3B.20 and illustrated in Figure 3B-22. The design and layout of accessible parking spaces for persons with disabilities is provided in the “Americans with Disabilities Act Accessibility Guidelines (ADAAG)” (see Section 1A.11).

Section 3B.20 Pavement Word, Symbol, and Arrow Markings

Support:

- 01 Word, symbol, and arrow markings on the pavement are used for the purpose of guiding, warning, or regulating traffic. These pavement markings can be helpful to road users in some locations by supplementing signs and providing additional emphasis for important regulatory, warning, or guidance messages, because the markings do not require diversion of the road user’s attention from the roadway surface. Symbol messages are preferable to word messages. Examples of standard word and arrow pavement markings are shown in Figures 3B-23 and 3B-24.

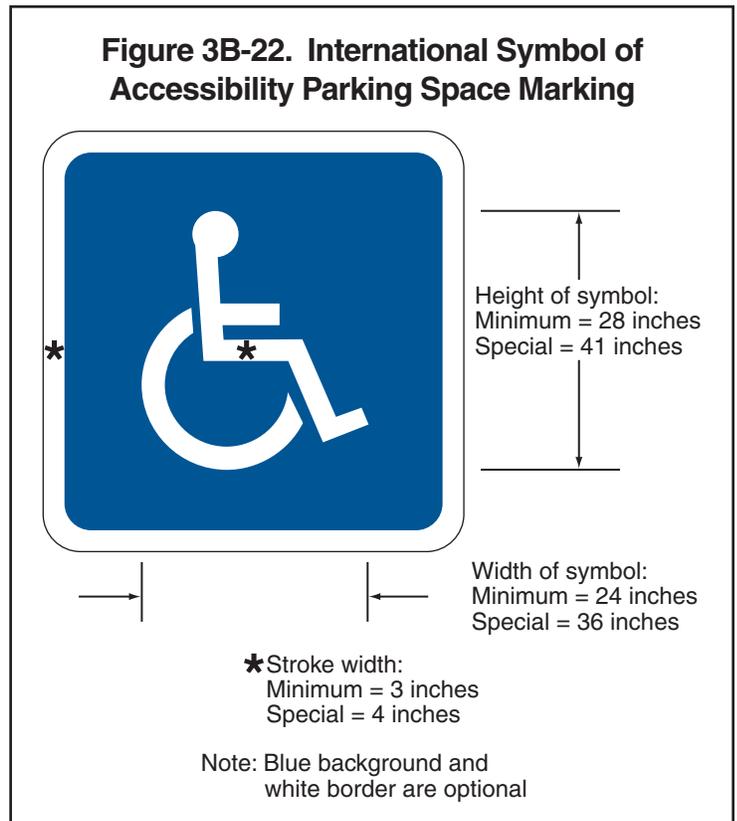
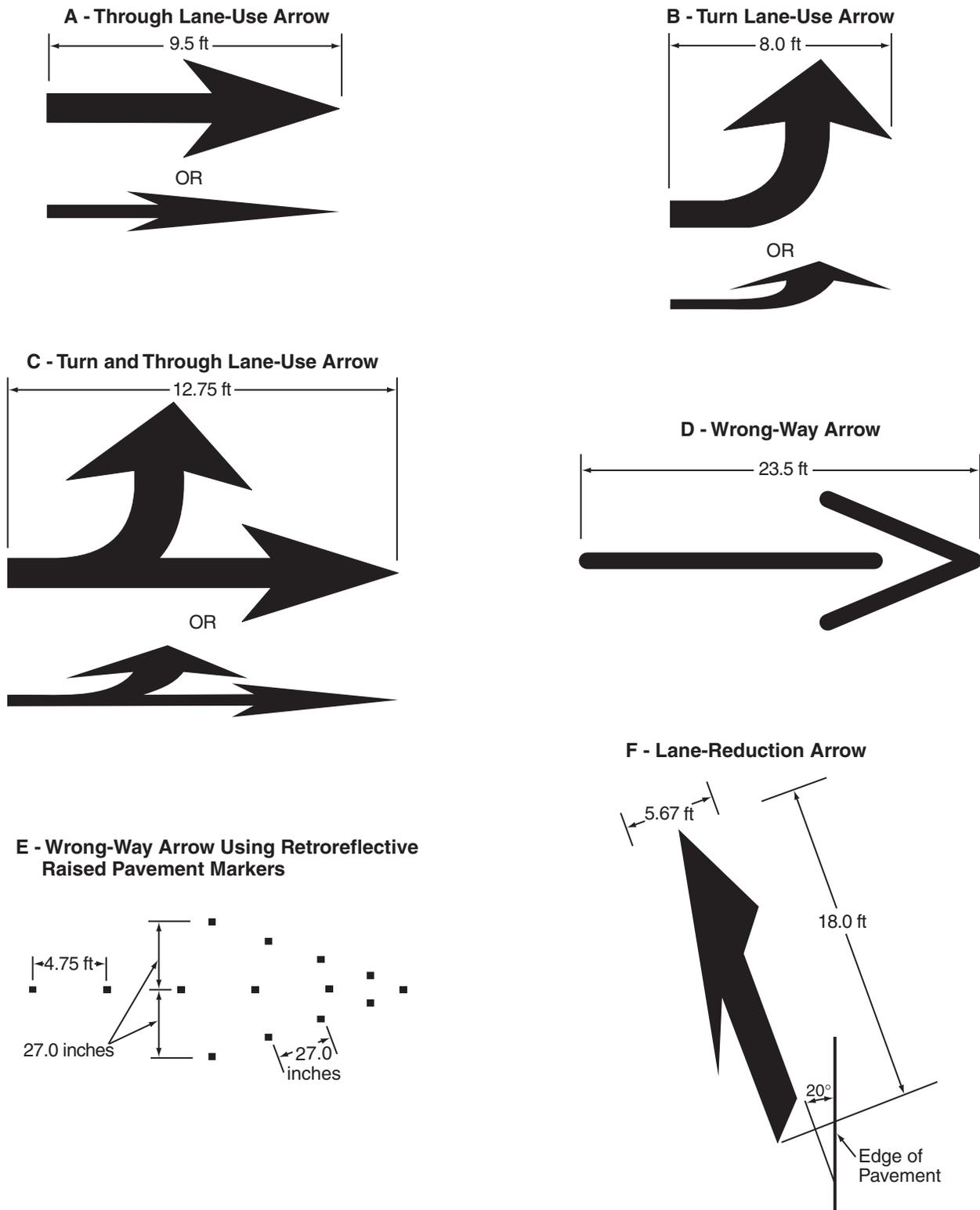


Figure 3B-23. Example of Elongated Letters for Word Pavement Markings



Figure 3B-24. Examples of Standard Arrows for Pavement Markings



Notes:

1. Typical sizes for normal installation; sizes may be reduced approximately one-third for low-speed urban conditions; larger sizes may be needed for freeways, above average speeds, and other critical locations.
2. The narrow elongated arrow designs shown in Drawings A, B, and C are optional.
3. For proper proportion, see the Pavement Markings chapter of the "Standard Highway Signs and Markings" book (see Section 1A.11).

Option:

- 02 Word, symbol, and arrow markings, including those contained in the “Standard Highway Signs and Markings” book (see Section 1A.11), may be used as determined by engineering judgment to supplement signs and/or to provide additional emphasis for regulatory, warning, or guidance messages. Among the word, symbol, and arrow markings that may be used are the following:
- A. Regulatory:
 1. STOP
 2. YIELD
 3. RIGHT (LEFT) TURN ONLY
 4. 25 MPH
 5. Lane-use and wrong-way arrows
 6. Diamond symbol for HOV lanes
 7. Other preferential lane word markings
 - B. Warning:
 1. STOP AHEAD
 2. YIELD AHEAD
 3. YIELD AHEAD triangle symbol
 4. SCHOOL XING
 5. SIGNAL AHEAD
 6. PED XING
 7. SCHOOL
 8. R X R
 9. BUMP
 10. HUMP
 11. Lane-reduction arrows
 - C. Guide:
 1. Route numbers (route shield pavement marking symbols and/or words such as I-81, US 40, STATE 135, or ROUTE 10)
 2. Cardinal directions (NORTH, SOUTH, EAST, or WEST)
 3. TO
 4. Destination names or abbreviations thereof

Standard:

- 03 **Word, symbol, and arrow markings shall be white, except as otherwise provided in this Section.**
- 04 **Pavement marking letters, numerals, symbols, and arrows shall be installed in accordance with the design details in the Pavement Markings chapter of the “Standard Highway Signs and Markings” book (see Section 1A.11).**

Guidance:

- 05 *Letters and numerals should be 6 feet or more in height.*
- 06 *Word and symbol markings should not exceed three lines of information.*
- 07 *If a pavement marking word message consists of more than one line of information, it should read in the direction of travel. The first word of the message should be nearest to the road user.*
- 08 *Except for the two opposing arrows of a two-way left-turn lane marking (see Figure 3B-7), the longitudinal space between word or symbol message markings, including arrow markings, should be at least four times the height of the characters for low-speed roads, but not more than ten times the height of the characters under any conditions.*
- 09 *The number of different word and symbol markings used should be minimized to provide effective guidance and avoid misunderstanding.*
- 10 *Except for the SCHOOL word marking (see Section 7C.03), pavement word, symbol, and arrow markings should be no more than one lane in width.*
- 11 *Pavement word, symbol, and arrow markings should be proportionally scaled to fit within the width of the facility upon which they are applied.*

Option:

- 12 On narrow, low-speed shared-use paths, the pavement words, symbols, and arrows may be smaller than suggested, but to the relative scale.

13 Pavement markings simulating Interstate, U.S., State, and other official highway route shield signs (see Figure 2D-3) with appropriate route numbers, but elongated for proper proportioning when viewed as a marking, may be used to guide road users to their destinations (see Figure 3B-25).

Standard:

14 Except at the ends of aisles in parking lots, the word STOP shall not be used on the pavement unless accompanied by a stop line (see Section 3B.16) and STOP sign (see Section 2B.05). At the ends of aisles in parking lots, the word STOP shall not be used on the pavement unless accompanied by a stop line.

15 The word STOP shall not be placed on the pavement in advance of a stop line, unless every vehicle is required to stop at all times.

Option:

16 A yield-ahead triangle symbol (see Figure 3B-26) or YIELD AHEAD word pavement marking may be used on approaches to intersections where the approaching traffic will encounter a YIELD sign at the intersection.

Standard:

17 The yield-ahead triangle symbol or YIELD AHEAD word pavement marking shall not be used unless a YIELD sign (see Section 2B.08) is in place at the intersection. The yield-ahead symbol marking shall be as shown in Figure 3B-26.

Guidance:

18 The International Symbol of Accessibility parking space marking (see Figure 3B-22) should be placed in each parking space designated for use by persons with disabilities.

Option:

19 A blue background with white border may supplement the wheelchair symbol as shown in Figure 3B-22.

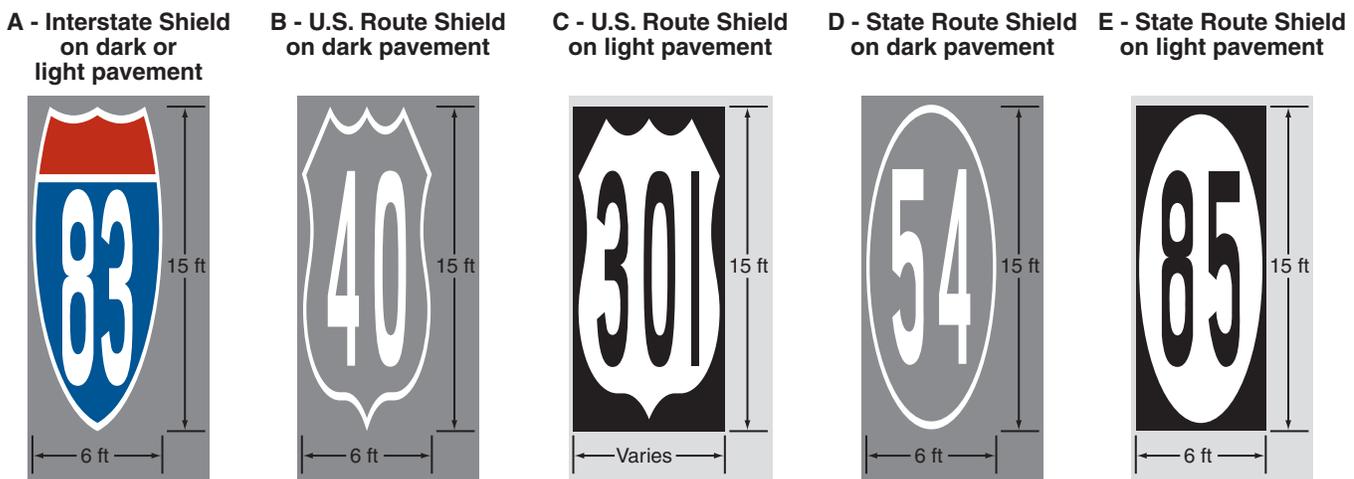
Support:

20 Lane-use arrow markings (see Figure 3B-24) are used to indicate the mandatory or permissible movements in certain lanes (see Figure 3B-27) and in two-way left-turn lanes (see Figure 3B-7).

Guidance:

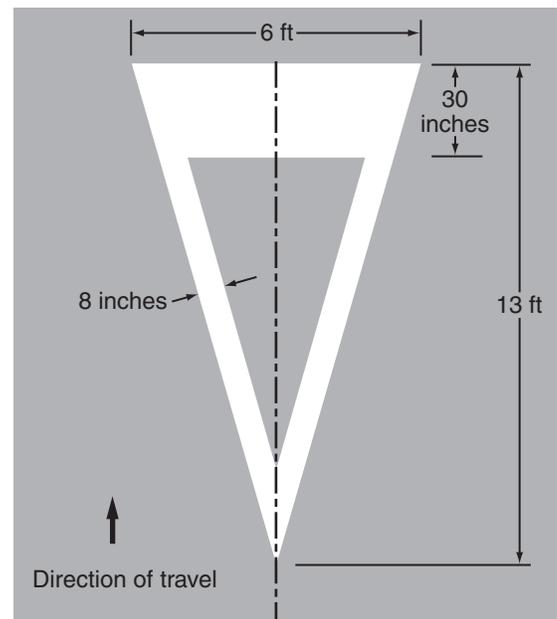
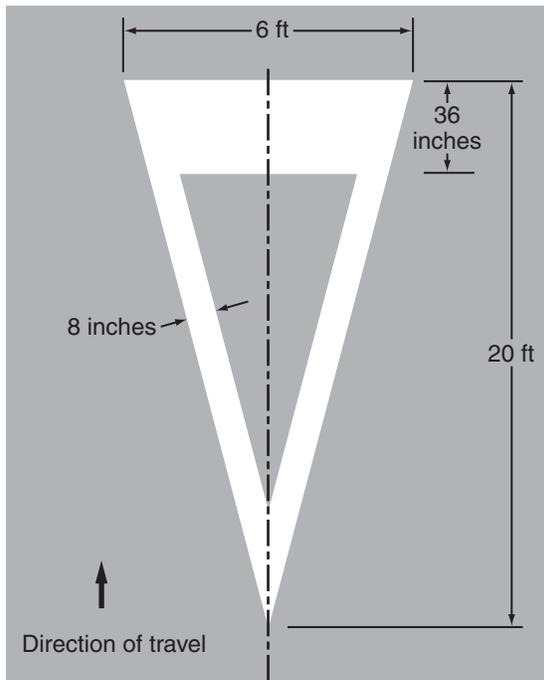
21 Lane-use arrow markings (see Figure 3B-24) should be used in lanes designated for the exclusive use of a turning movement, including turn bays, except where engineering judgment determines that physical conditions or other markings (such as a dotted extension of the lane line through the taper into the turn bay) clearly discourage unintentional use of a turn bay by through vehicles. Lane-use arrow markings should also be used in lanes from which movements are allowed that are contrary to the normal rules of the road (see Drawing B of Figure 3B-13). When used in turn lanes, at least two arrows should be used, one at or near the upstream end of the full-width turn lane and one an appropriate distance upstream from the stop line or intersection (see Drawing A of Figure 3B-11).

Figure 3B-25. Examples of Elongated Route Shields for Pavement Markings



Notes:

1. See the "Standard Highway Signs and Markings" book for other sizes and details
2. Colors and elongated shapes simulating State route shield signs may be used for route shield pavement markings where appropriate

Figure 3B-26. Yield Ahead Triangle Symbols**A - Posted or Statutory Speed Limit of 45 mph or greater****B - Posted or Statutory Speed Limit of less than 45 mph****Option:**

- 22 An additional arrow or arrows may be used in a turn lane. When arrows are used for a short turn lane, the second (downstream) arrow may be omitted based on engineering judgment.

Guidance:

- 23 Where opposing offset channelized left-turn lanes exist, lane-use arrow markings should be placed near the downstream terminus of the offset left-turn lanes to reduce wrong-way movements (see Figure 2B-17).

Support:

- 24 An arrow at the downstream end of a turn lane can help to prevent wrong way movements.

Standard:

- 25 Where through lanes approaching an intersection become mandatory turn lanes, lane-use arrow markings (see Figure 3B-24) shall be used and shall be accompanied by standard signs.

Guidance:

- 26 Where through lanes approaching an intersection become mandatory turn lanes, ONLY word markings (see Figure 3B-23) should be used in addition to the required lane-use arrow markings and signs (see Sections 2B.19 and 2B.20). These markings and signs should be placed well in advance of the turn and should be repeated as necessary to prevent entrapment and to help the road user select the appropriate lane in advance of reaching a queue of waiting vehicles (see Drawing A of Figure 3B-11).

Option:

- 27 On freeways or expressways where a through lane becomes a mandatory exit lane, lane-use arrow markings may be used on the approach to the exit in the dropped lane and in an adjacent optional through-or-exit lane if one exists.

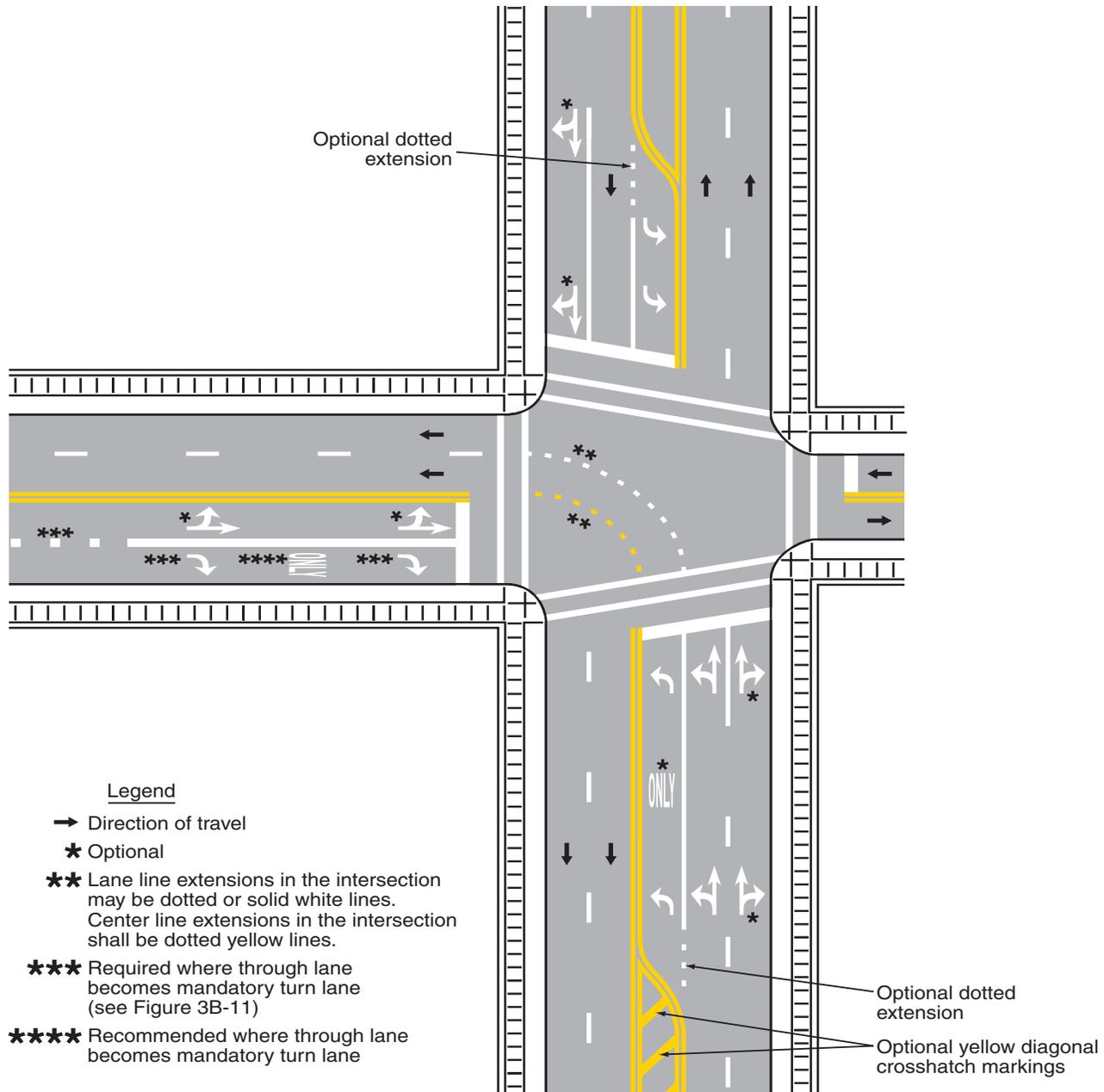
Guidance:

- 28 A two-way left-turn lane-use arrow pavement marking, with opposing arrows spaced as shown in Figure 3B-7, should be used at or just downstream from the beginning of a two-way left-turn lane.

Option:

- 29 Additional two-way left-turn lane-use arrow markings may be used at other locations along a two-way left-turn lane where engineering judgment determines that such additional markings are needed to emphasize the proper use of the lane.

Figure 3B-27. Examples of Lane-Use Control Word and Arrow Pavement Markings



Standard:

30 A single-direction lane-use arrow shall not be used in a lane bordered on both sides by yellow two-way left-turn lane longitudinal markings.

31 Lane-use, lane-reduction, and wrong-way arrow markings shall be designed as shown in Figure 3B-24 and in the “Standard Highway Signs and Markings” book (see Section 1A.11).

Option:

32 The ONLY word marking (see Figure 3B-23) may be used to supplement the lane-use arrow markings in lanes that are designated for the exclusive use of a single movement (see Figure 3B-27) or to supplement a preferential lane word or symbol marking (see Section 3D.01).

Standard:

33 The ONLY word marking shall not be used in a lane that is shared by more than one movement.

Guidance:

- 34 *Where a lane-reduction transition occurs on a roadway with a speed limit of 45 mph or more, the lane-reduction arrow markings shown in Drawing F in Figure 3B-24 should be used (see Figure 3B-14). Except for acceleration lanes, where a lane-reduction transition occurs on a roadway with a speed limit of less than 45 mph, the lane-reduction arrow markings shown in Drawing F in Figure 3B-24 should be used if determined to be appropriate based on engineering judgment.*

Option:

- 35 Lane-reduction arrow markings may be used in long acceleration lanes based on engineering judgment.

Guidance:

- 36 *Where crossroad channelization or ramp geometrics do not make wrong-way movements difficult, the appropriate 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 (see Figure 2B-18).*

Option:

- 37 The wrong-way arrow markings shown in Drawing D in Figure 3B-24 may be placed near the downstream terminus of a ramp as shown in Figures 2B-18 and 2B-19, or at other locations where lane-use arrows are not appropriate, to indicate the correct direction of traffic flow and to discourage drivers from traveling in the wrong direction.

Section 3B.21 Speed Measurement Markings*Support:*

- 01 A speed measurement marking is a transverse marking placed on the roadway to assist the enforcement of speed regulations.

Standard:

- 02 **Speed measurement markings, if used, shall be white, and shall not be greater than 24 inches in width.**

Option:

- 03 Speed measurement markings may extend 24 inches on either side of the center line or 24 inches on either side of edge line markings at 1/4-mile intervals over a 1-mile length of roadway. When paved shoulders of sufficient width are available, the speed measurement markings may be placed entirely on these shoulders (see Drawing A of Figure 3B-10). Advisory signs may be used in conjunction with these markings.

Section 3B.22 Speed Reduction Markings*Support:*

- 01 Speed reduction markings (see Figure 3B-28) are transverse markings that are placed on the roadway within a lane (along both edges of the lane) in a pattern of progressively reduced spacing to give drivers the impression that their speed is increasing. These markings might be placed in advance of an unexpectedly severe horizontal or vertical curve or other roadway feature where drivers need to decelerate prior to reaching the feature and where the desired reduction in speeds has not been achieved by the installation of warning signs and/or other traffic control devices.

Guidance:

- 02 *If used, speed reduction markings should be reserved for unexpected curves and should not be used on long tangent sections of roadway or in areas frequented mainly by local or familiar drivers, (e.g., school zones). If used, speed reduction markings should supplement the appropriate warning signs and other traffic control devices and should not substitute for these devices.*

Standard:

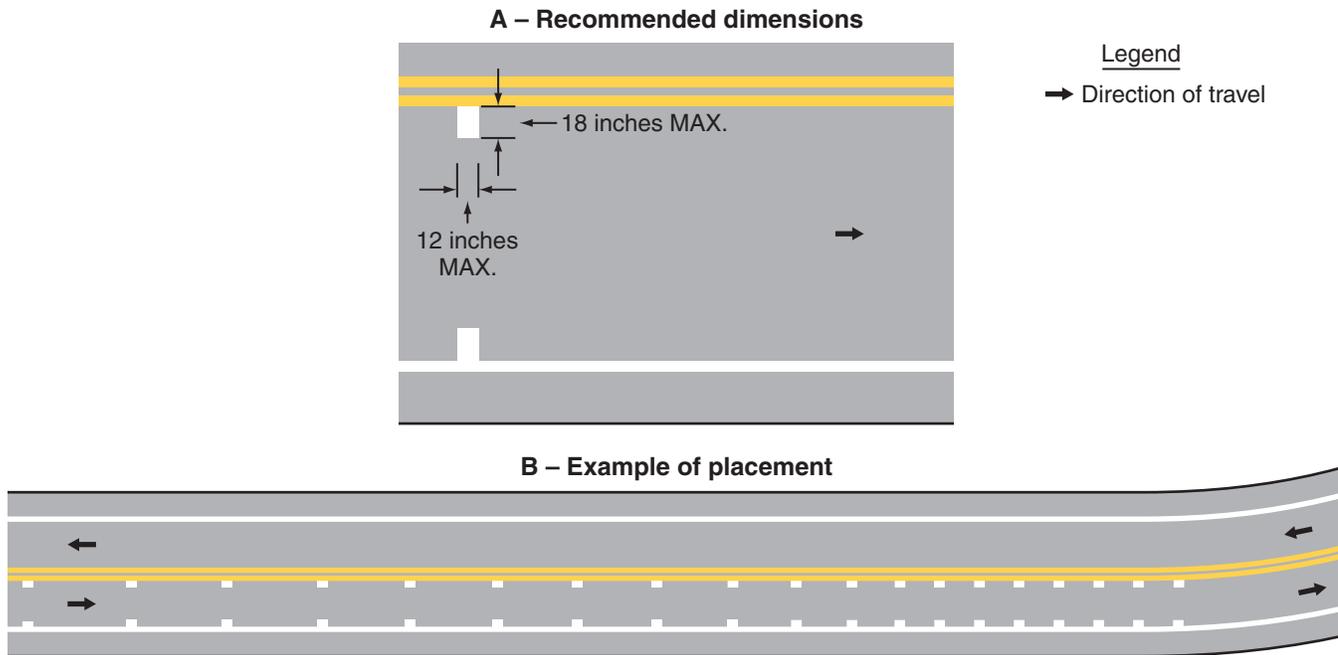
- 03 **If used, speed reduction markings shall be a series of white transverse lines on both sides of the lane that are perpendicular to the center line, edge line, or lane line. The longitudinal spacing between the markings shall be progressively reduced from the upstream to the downstream end of the marked portion of the lane.**

Guidance:

- 04 *Speed reduction markings should not be greater than 12 inches in width, and should not extend more than 18 inches into the lane.*

Standard:

- 05 **Speed reduction markings shall not be used in lanes that do not have a longitudinal line (center line, edge line, or lane line) on both sides of the lane.**

Figure 3B-28. Example of the Application of Speed Reduction Markings

Section 3B.23 Curb Markings

Support:

- 01 Curb markings are most often used to indicate parking regulations or to delineate the curb.

Standard:

- 02 **Where curbs are marked to convey parking regulations in areas where curb markings are frequently obscured by snow and ice accumulation, signs shall be used with the curb markings except as provided in Paragraph 4.**

Guidance:

- 03 *Except as provided in Paragraph 4, when curb markings are used without signs to convey parking regulations, a legible word marking regarding the regulation (such as “No Parking” or “No Standing”) should be placed on the curb.*

Option:

- 04 Curb markings without word markings or signs may be used to convey a general prohibition by statute of parking within a specified distance of a STOP sign, YIELD sign, driveway, fire hydrant, or crosswalk.
- 05 Local highway agencies may prescribe special colors for curb markings to supplement standard signs for parking regulation.

Support:

- 06 Since yellow and white curb markings are frequently used for curb delineation and visibility, it is advisable to establish parking regulations through the installation of standard signs (see Sections 2B.46 through 2B.48).

Standard:

- 07 **Where curbs are marked for delineation or visibility purposes, the colors shall comply with the general principles of markings (see Section 3A.05).**

Guidance:

- 08 *Retroreflective solid yellow markings should be placed on the approach ends of raised medians and curbs of islands that are located in the line of traffic flow where the curb serves to channel traffic to the right of the obstruction.*

- 09 *Retroreflective solid white markings should be used when traffic is permitted to pass on either side of the island.*

Support:

- 10 Where the curbs of the islands become parallel to the direction of traffic flow, it is not necessary to mark the curbs unless an engineering study indicates the need for this type of delineation.

- 11 Curbs at openings in a continuous median island need not be marked unless an engineering study indicates the need for this type of marking.

Option:

- 12 Retroreflective or internally illuminated raised pavement markers of the appropriate color may be placed on the pavement in front of the curb and/or on the top of curbed as of raised medians and curbs of islands, as a supplement to or substitute for retroreflective curb markings used for delineation.

Section 3B.24 Chevron and Diagonal Crosshatch Markings

Option:

- 01 Chevron and diagonal crosshatch markings may be used to discourage travel on certain paved areas, such as shoulders, gore areas, flush median areas between solid double yellow center line markings or between white channelizing lines approaching obstructions in the roadway (see Section 3B.10 and Figure 3B-15), between solid double yellow center line markings forming flush medians or channelized travel paths at intersections (see Figures 3B-2 and 3B-5), buffer spaces between preferential lanes and general-purpose lanes (see Figures 3D-2 and 3D-4), and at grade crossings (see Part 8).

Standard:

- 02 **When crosshatch markings are used in paved areas that separate traffic flows in the same general direction, they shall be white and they shall be shaped as chevron markings, with the point of each chevron facing toward approaching traffic, as shown in Figure 3B-8, Drawing A of Figure 3B-9, Figure 3B-10, and Drawing C of Figure 3B-15.**
- 03 **When crosshatch markings are used in paved areas that separate opposing directions of traffic, they shall be yellow diagonal markings that slant away from traffic in the adjacent travel lanes, as shown in Figures 3B-2 and 3B-5 and Drawings A and B of Figure 3B-15.**
- 04 **When crosshatch markings are used on paved shoulders, they shall be diagonal markings that slant away from traffic in the adjacent travel lane. The diagonal markings shall be yellow when used on the left-hand shoulders of the roadways of divided highways and on the left-hand shoulders of one-way streets or ramps. The diagonal markings shall be white when used on right-hand shoulders.**

Guidance:

- 05 *The chevrons and diagonal lines used for crosshatch markings should be at least 12 inches wide for roadways having a posted or statutory speed limit of 45 mph or greater, and at least 8 inches wide for roadways having posted or statutory speed limit of less than 45 mph. The longitudinal spacing of the chevrons or diagonal lines should be determined by engineering judgment considering factors such as speeds and desired visual impacts. The chevrons and diagonal lines should form an angle of approximately 30 to 45 degrees with the longitudinal lines that they intersect.*

Section 3B.25 Speed Hump Markings

Standard:

- 01 **If speed hump markings are used, they shall be a series of white markings placed on a speed hump to identify its location. If markings are used for a speed hump that does not also function as a crosswalk or speed Table, the markings shall comply with Option A, B, or C shown in Figure 3B-29. If markings are used for a speed hump that also functions as a crosswalk or speed Table, the markings shall comply with Option A or B shown in Figure 3B-30.**

Section 3B.26 Advance Speed Hump Markings

Option:

- 01 Advance speed hump markings (see Figure 3B-31) may be used in advance of speed humps or other engineered vertical roadway deflections such as dips where added visibility is desired or where such deflection is not expected.
- 02 Advance pavement wording such as BUMP or HUMP (see Section 3B.20) may be used on the approach to a speed hump either alone or in conjunction with advance speed hump markings. Appropriate advance warning signs may be used in compliance with Section 2C.29.

Standard:

- 03 **If advance speed hump markings are used, they shall be a series of eight white 12-inch transverse lines that become longer and are spaced closer together as the vehicle approaches the speed hump or other deflection. If advance markings are used, they shall comply with the detailed design shown in Figure 3B-31.**

Guidance:

- 04 If used, advance speed hump markings should be installed in each approach lane.

Figure 3B-29. Pavement Markings for Speed Humps without Crosswalks

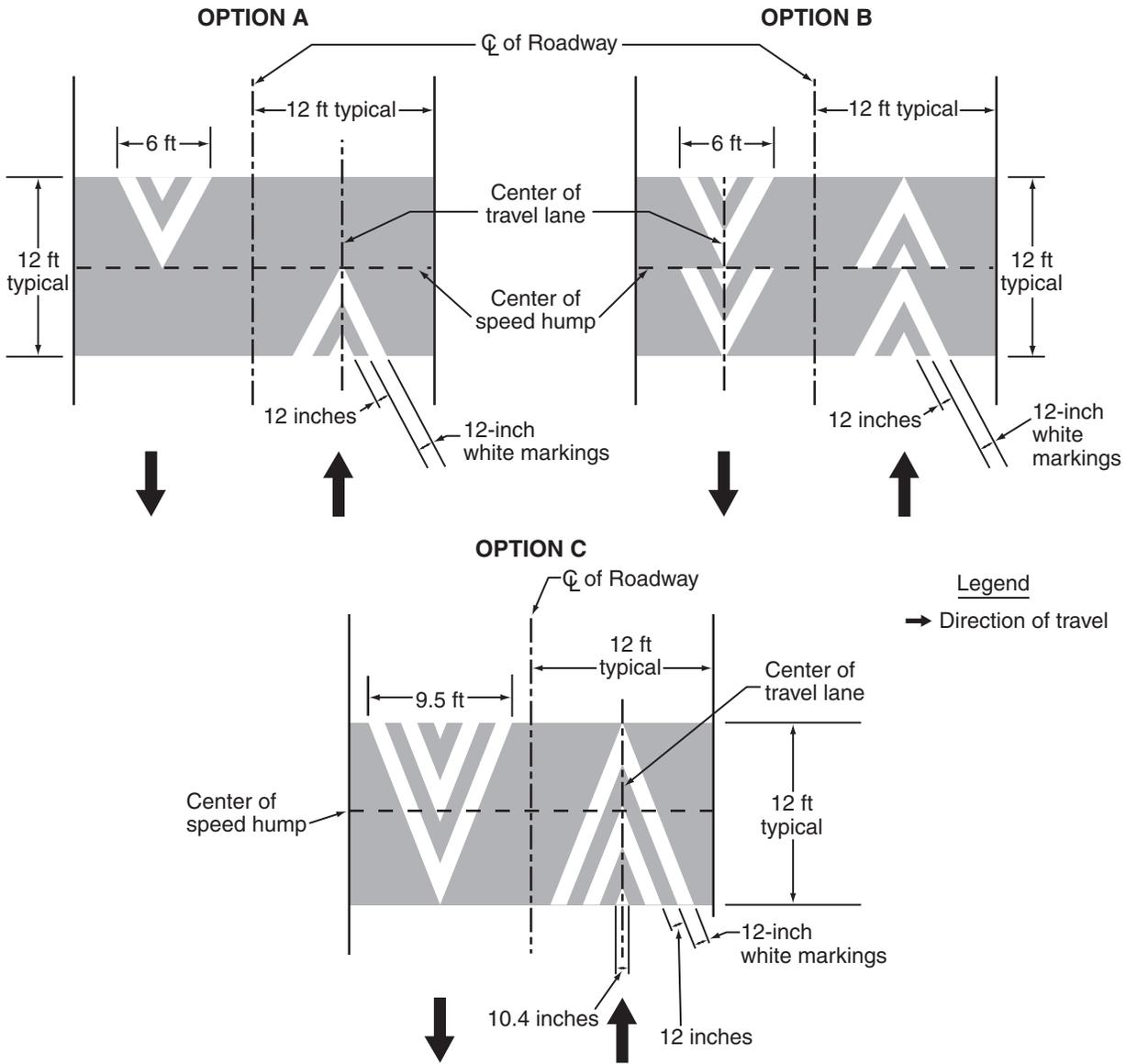
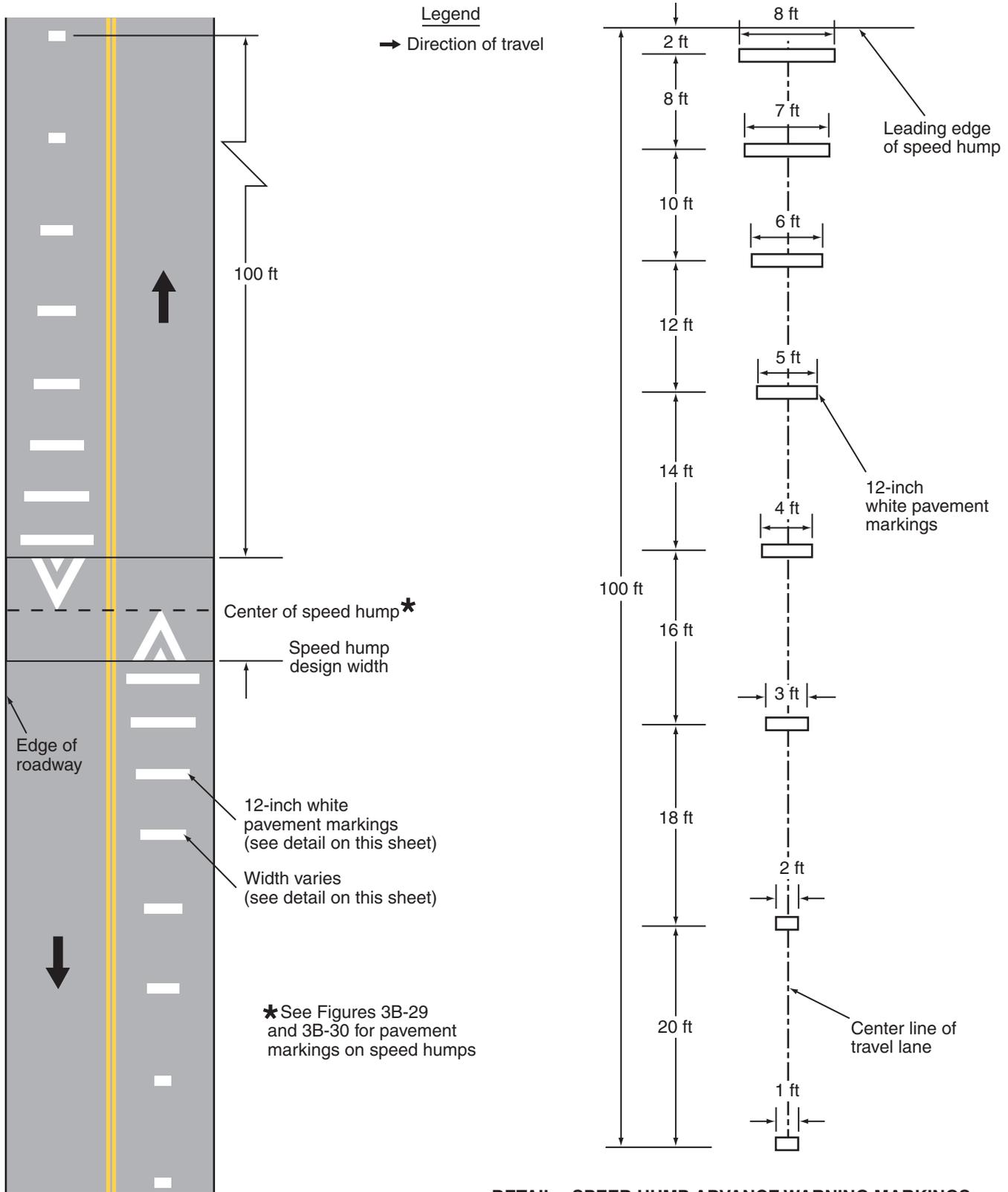


Figure 3B-31. Advance Warning Markings for Speed Humps



CHAPTER 3C. ROUNDABOUT MARKINGS

Section 3C.01 General

Support:

- 01 A roundabout (see definition in Section 1A.13) is a specific type of circular intersection designed to control speeds and having specific traffic control features.

Guidance:

- 02 *Pavement markings and signing for a roundabout should be integrally designed to correspond to the geometric design and intended lane use of a roundabout.*
- 03 *Markings on the approaches to a roundabout and on the circular roadway should be compatible with each other to provide a consistent message to road users and should facilitate movement through the roundabout such that vehicles do not have to change lanes within the circulatory roadway in order to exit the roundabout in a given direction.*

Support:

- 04 Figure 3C-1 provides an example of the pavement markings for approach and circulatory roadways at a roundabout. Figure 3C-2 shows the options that are available for lane-use pavement marking arrows on approaches to roundabouts. Figures 3C-3 through 3C-14 illustrate examples of markings for roundabouts of various geometric and lane-use configurations.
- 05 Traffic control signals or pedestrian hybrid beacons (see Part 4) are sometimes used at roundabouts to facilitate the crossing of pedestrians or to meter traffic.
- 06 Section 8C.12 contains information about roundabouts that contain or are in close proximity to grade crossings.

Figure 3C-1. Example of Markings for Approach and Circulatory Roadways at a Roundabout

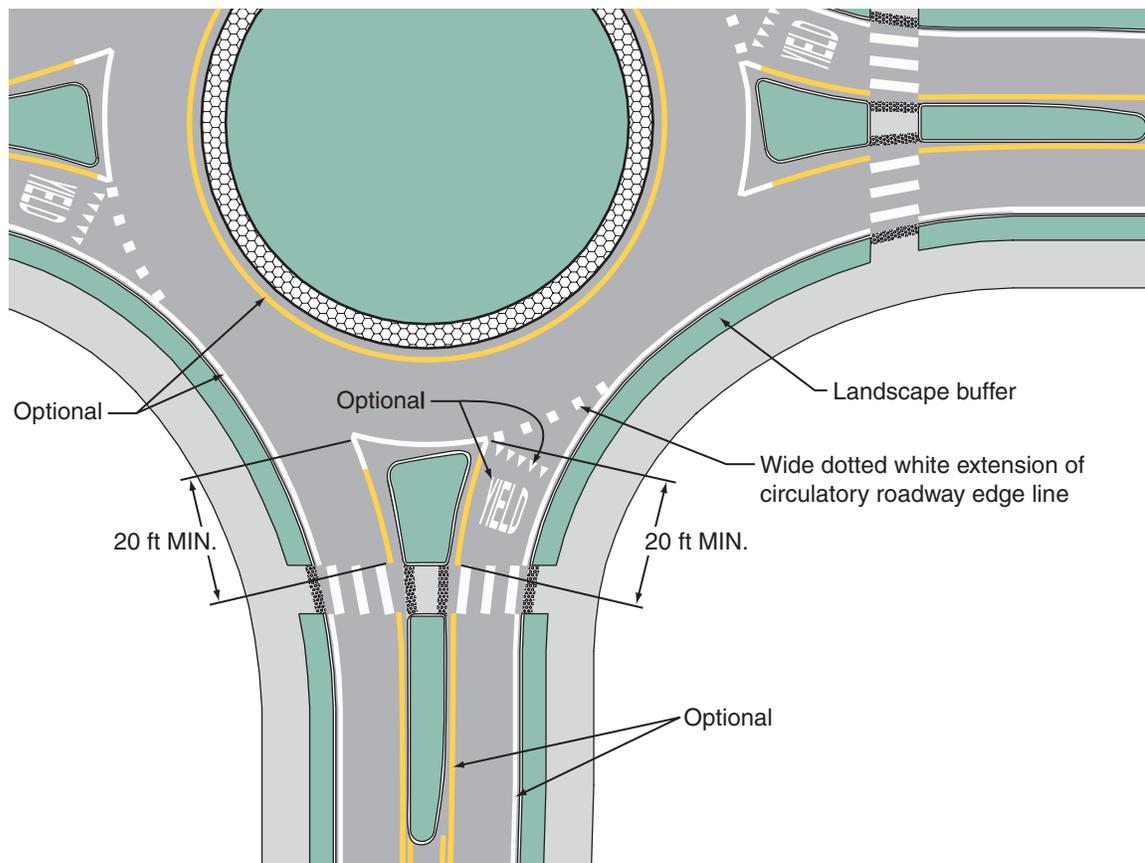


Figure 3C-2. Lane-Use Arrow Pavement Marking Options for Roundabout Approaches

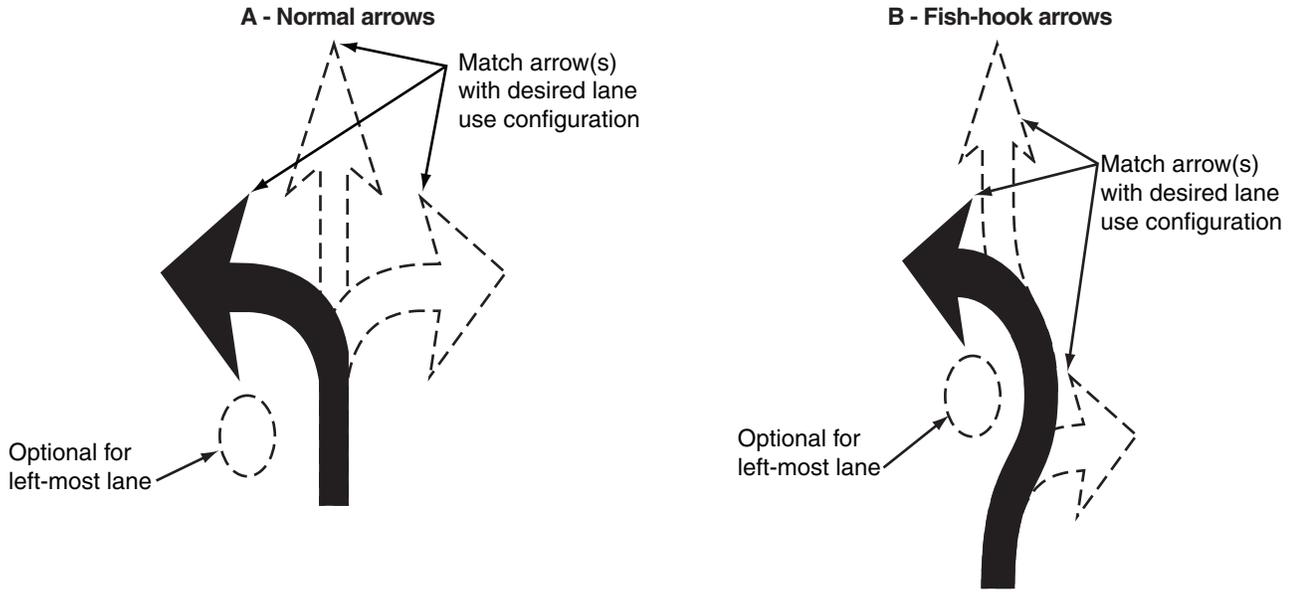


Figure 3C-3. Example of Markings for a One-Lane Roundabout

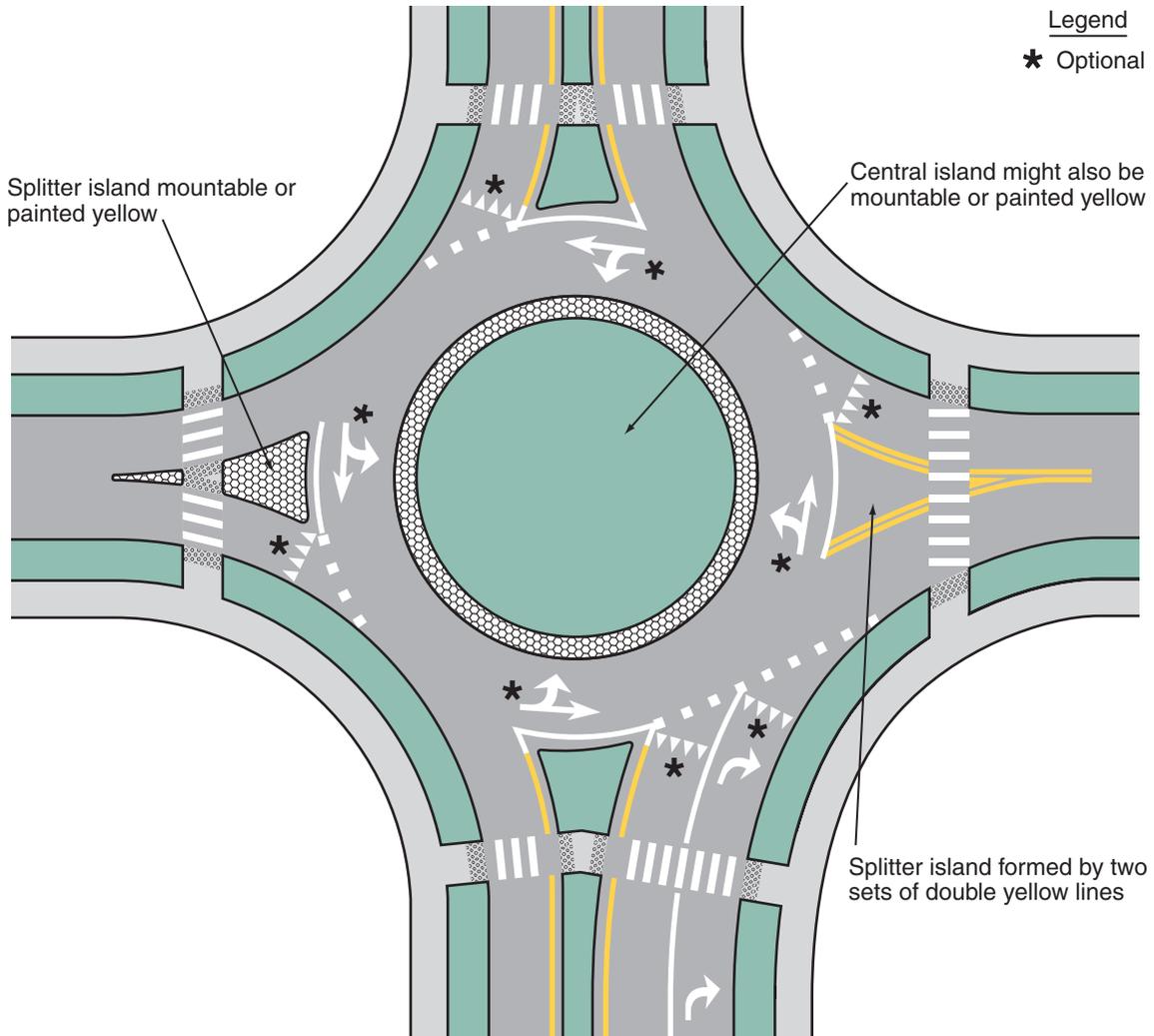


Figure 3C-4. Example of Markings for a Two-Lane Roundabout with One- and Two-Lane Approaches (Sheet 1 of 2)

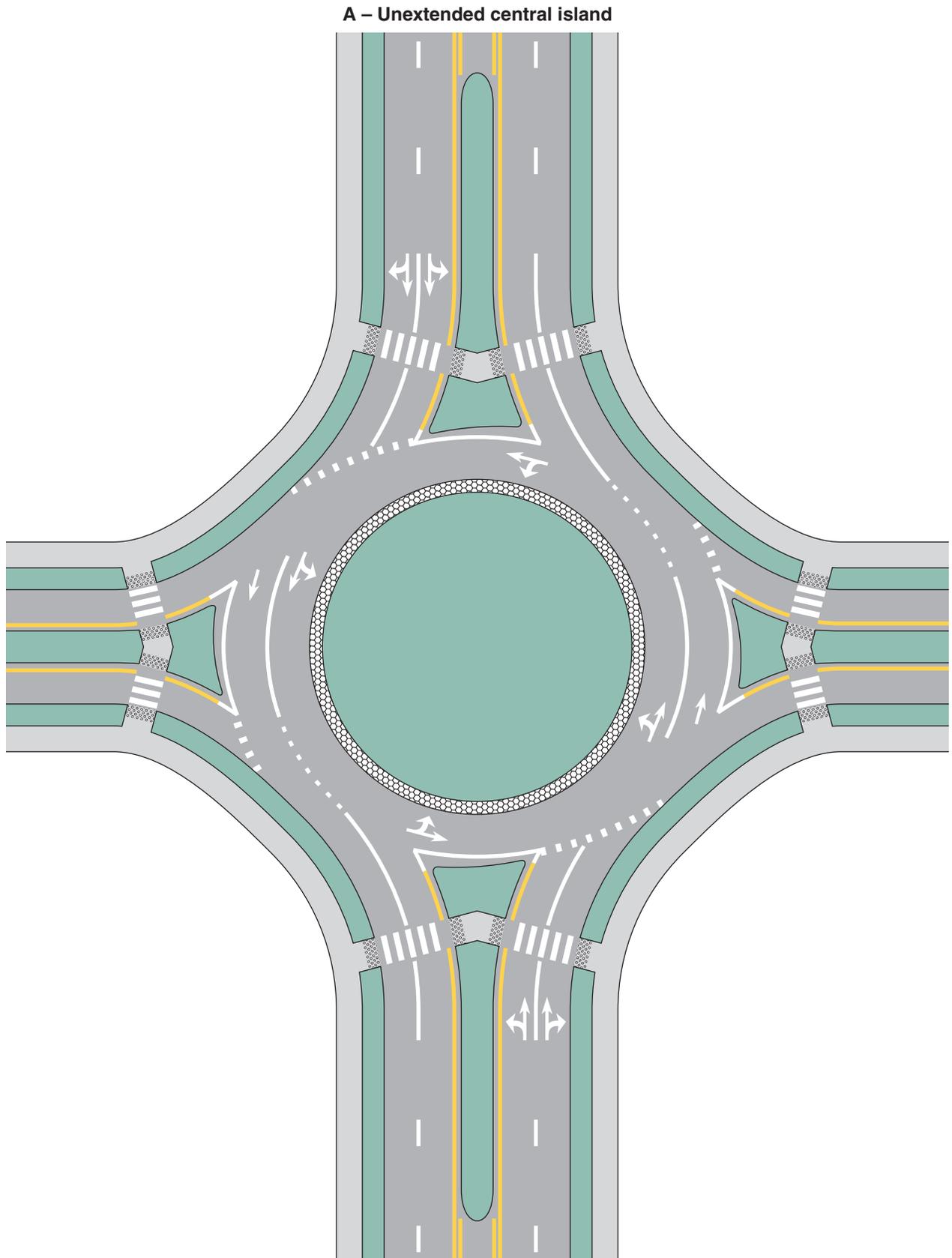
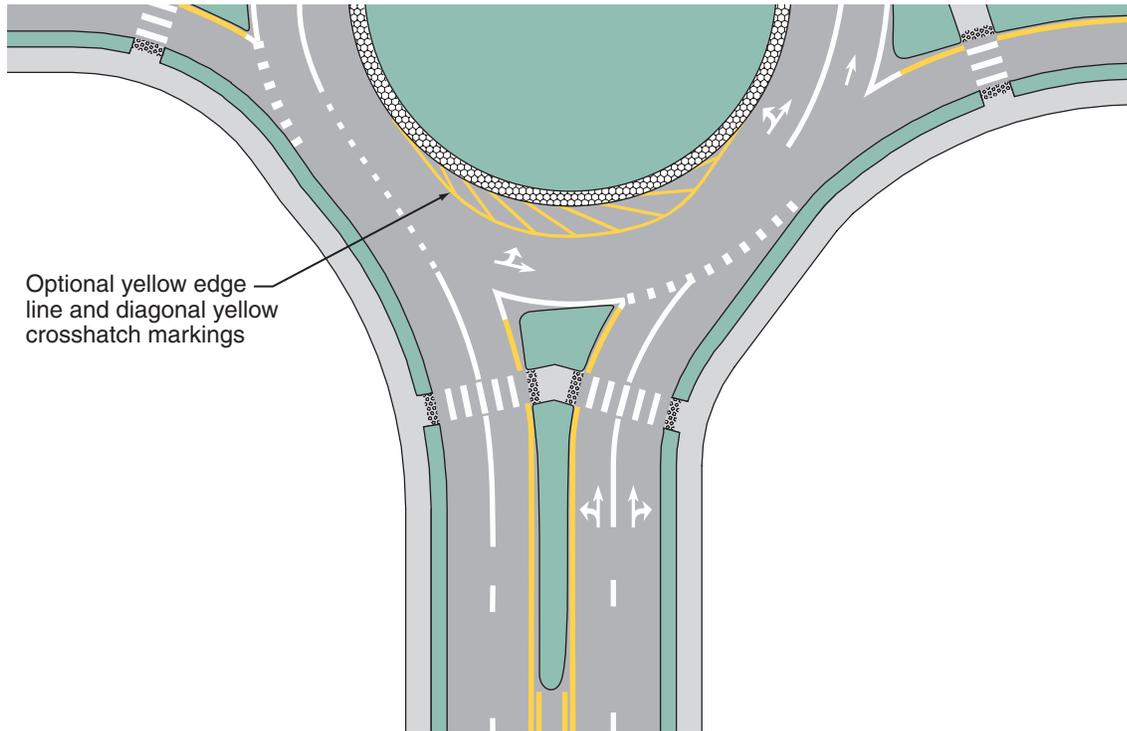


Figure 3C-4. Example of Markings for a Two-Lane Roundabout with One- and Two-Lane Approaches (Sheet 2 of 2)

B – Central island extended by pavement markings



C – Central island extended by a truck apron

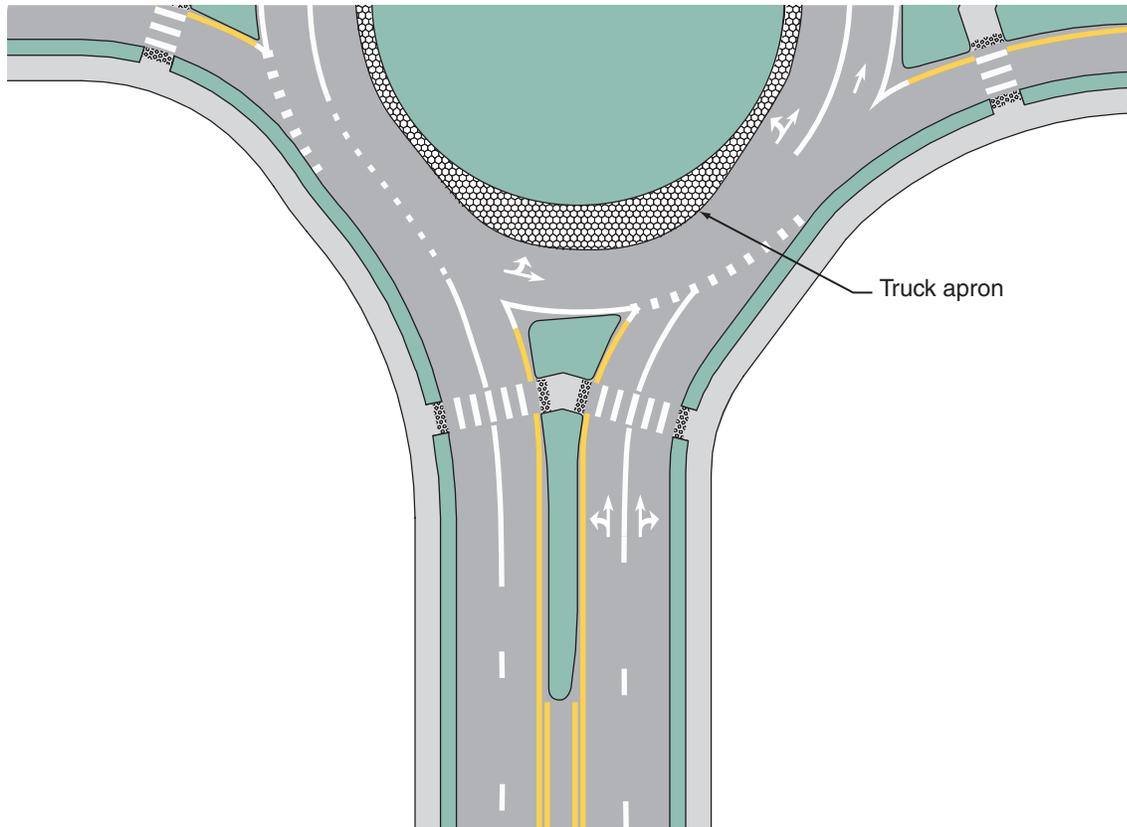


Figure 3C-5. Example of Markings for a Two-Lane Roundabout with One-Lane Exits

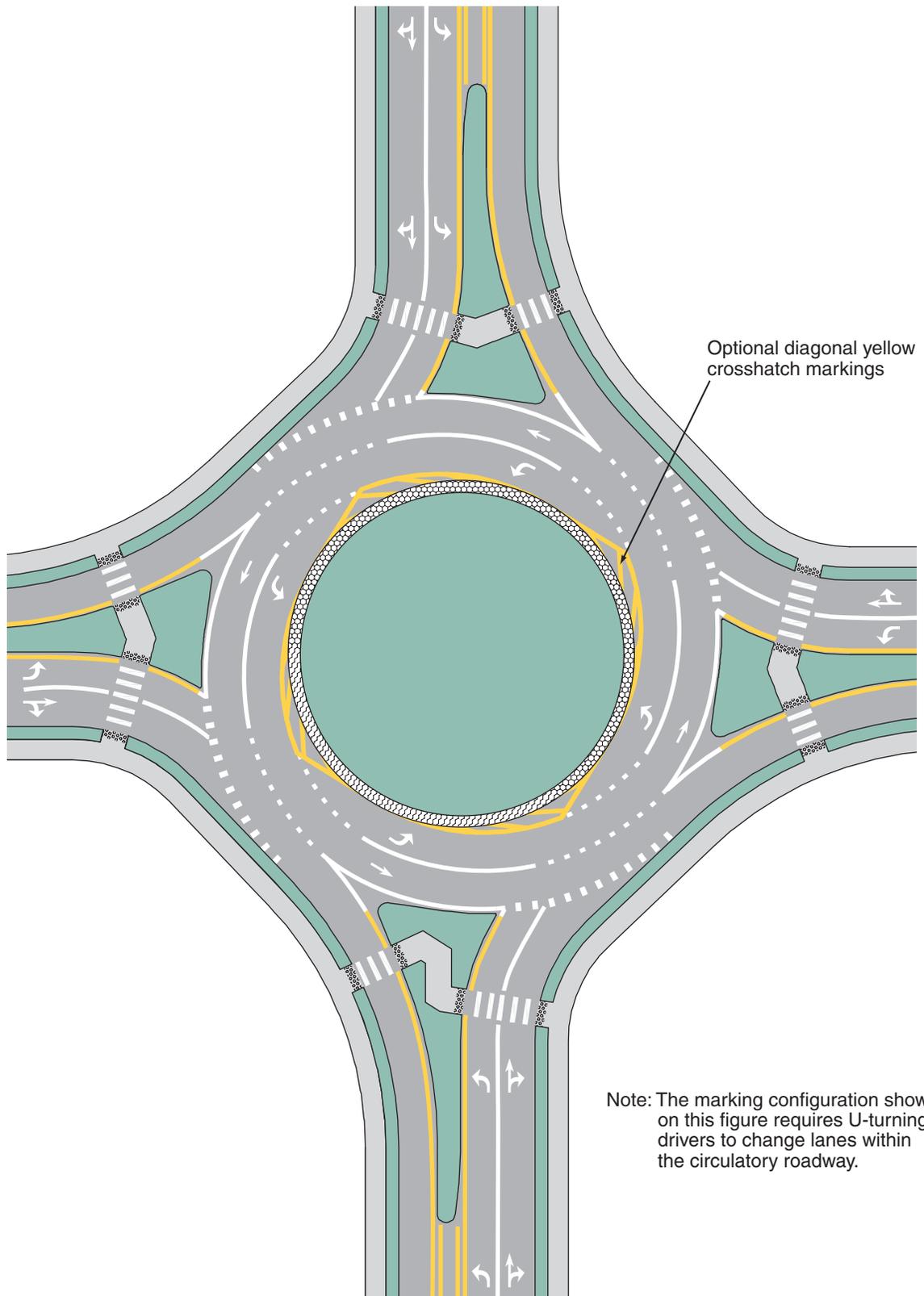


Figure 3C-6. Example of Markings for a Two-Lane Roundabout with Two-Lane Exits

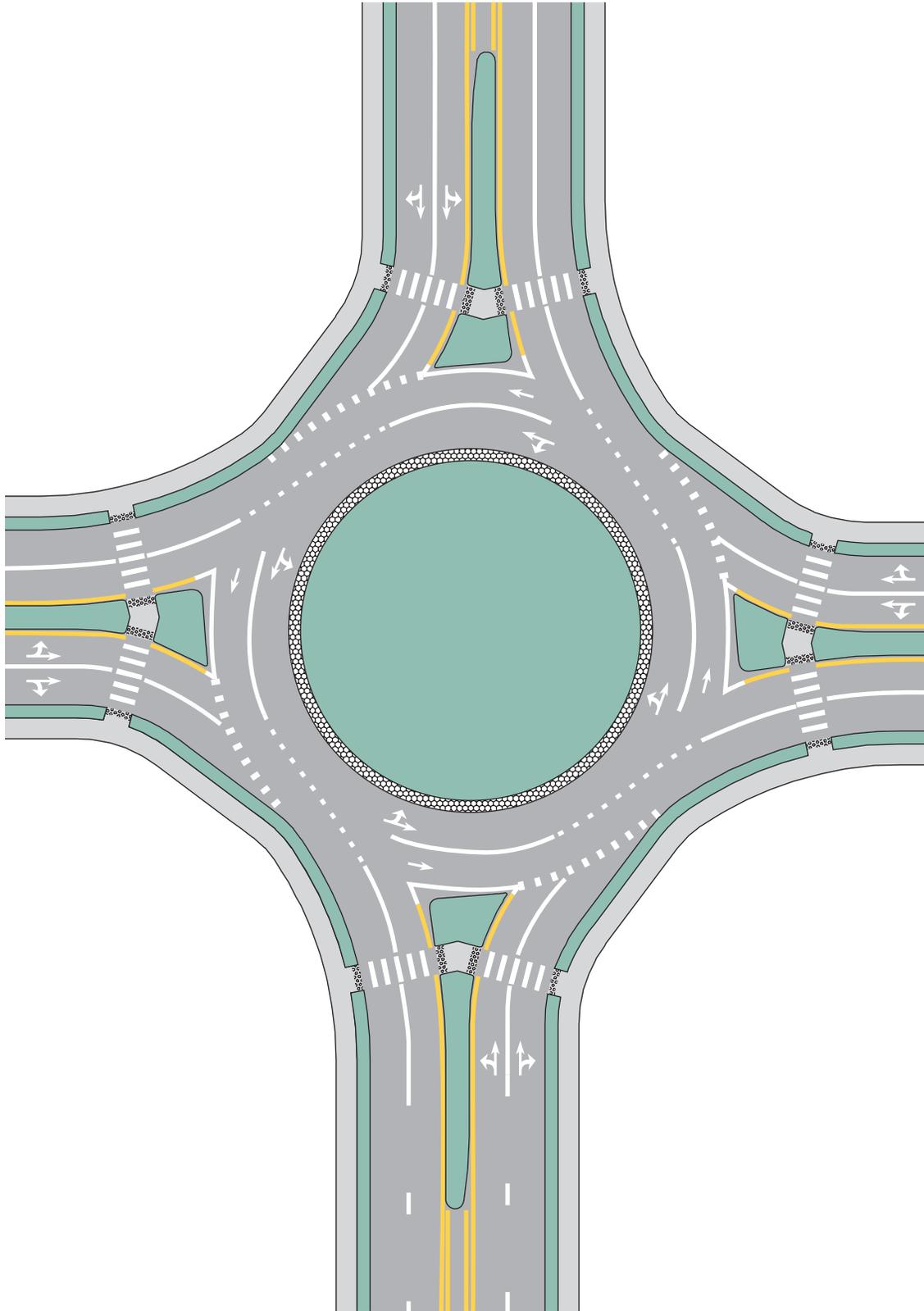
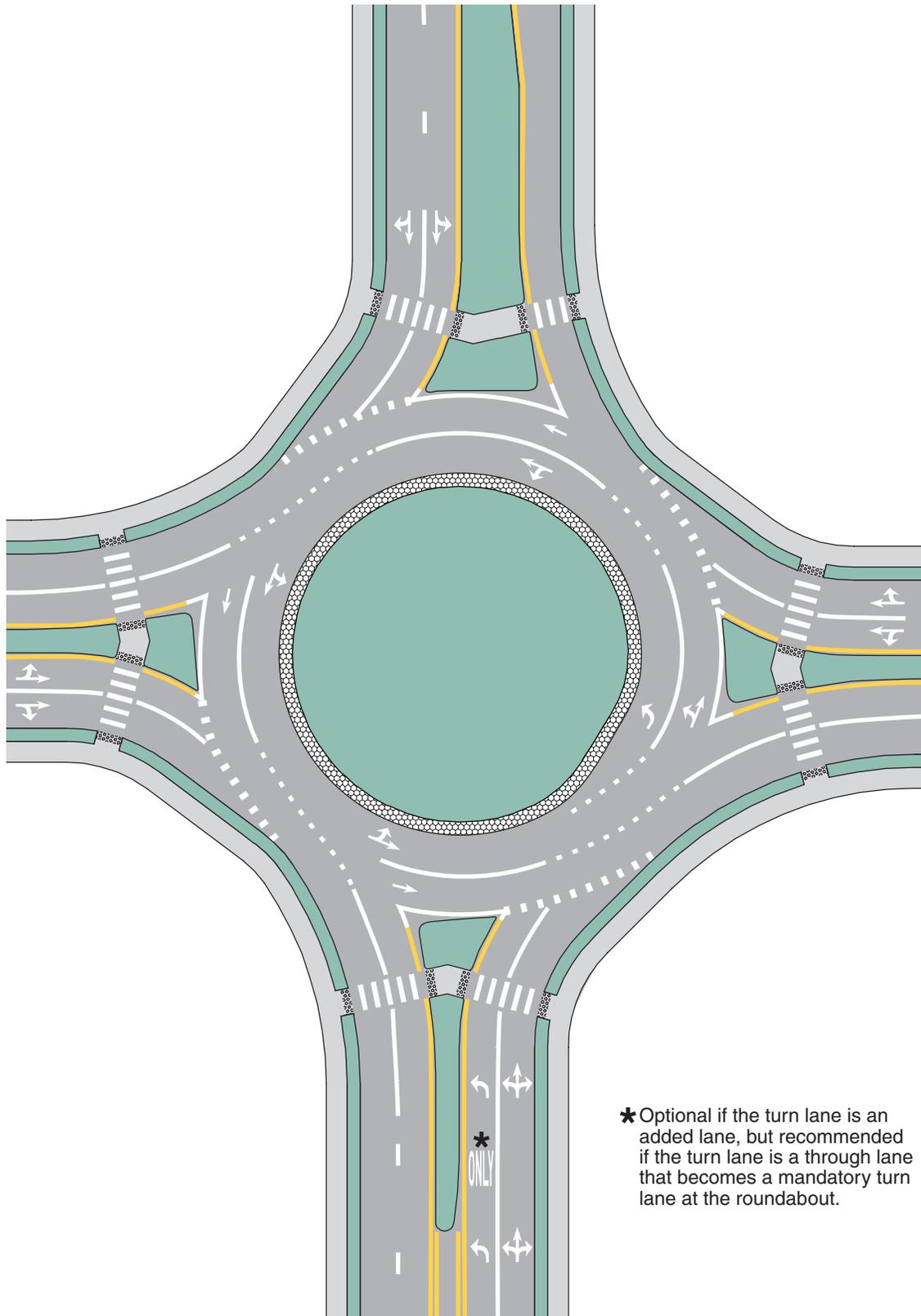


Figure 3C-7. Example of Markings for a Two-Lane Roundabout with a Double Left Turn



*Optional if the turn lane is an added lane, but recommended if the turn lane is a through lane that becomes a mandatory turn lane at the roundabout.

Figure 3C-8. Example of Markings for a Two-Lane Roundabout with a Double Right Turn

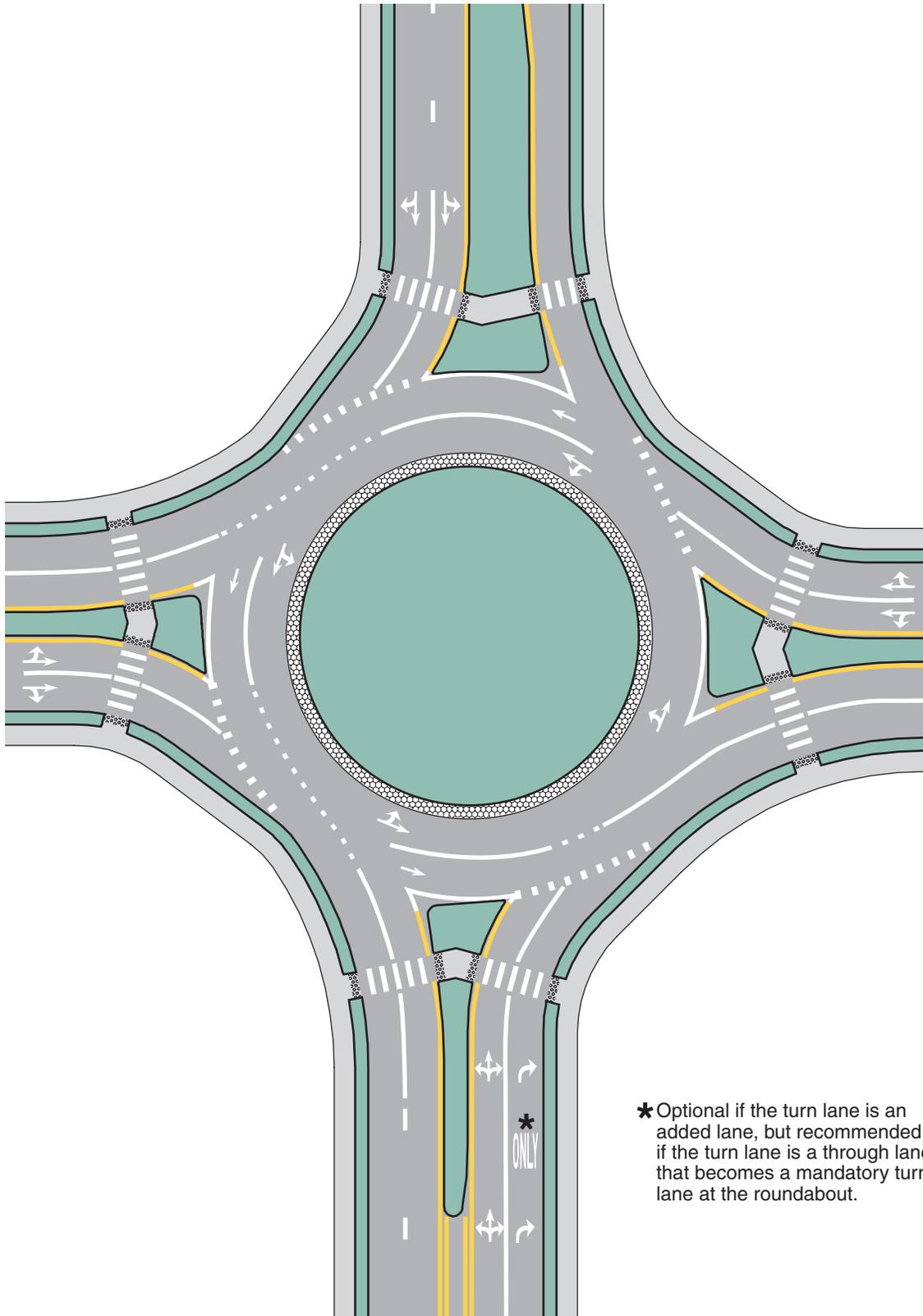


Figure 3C-10. Example of Markings for a Three-Lane Roundabout with Two- and Three-Lane Approaches

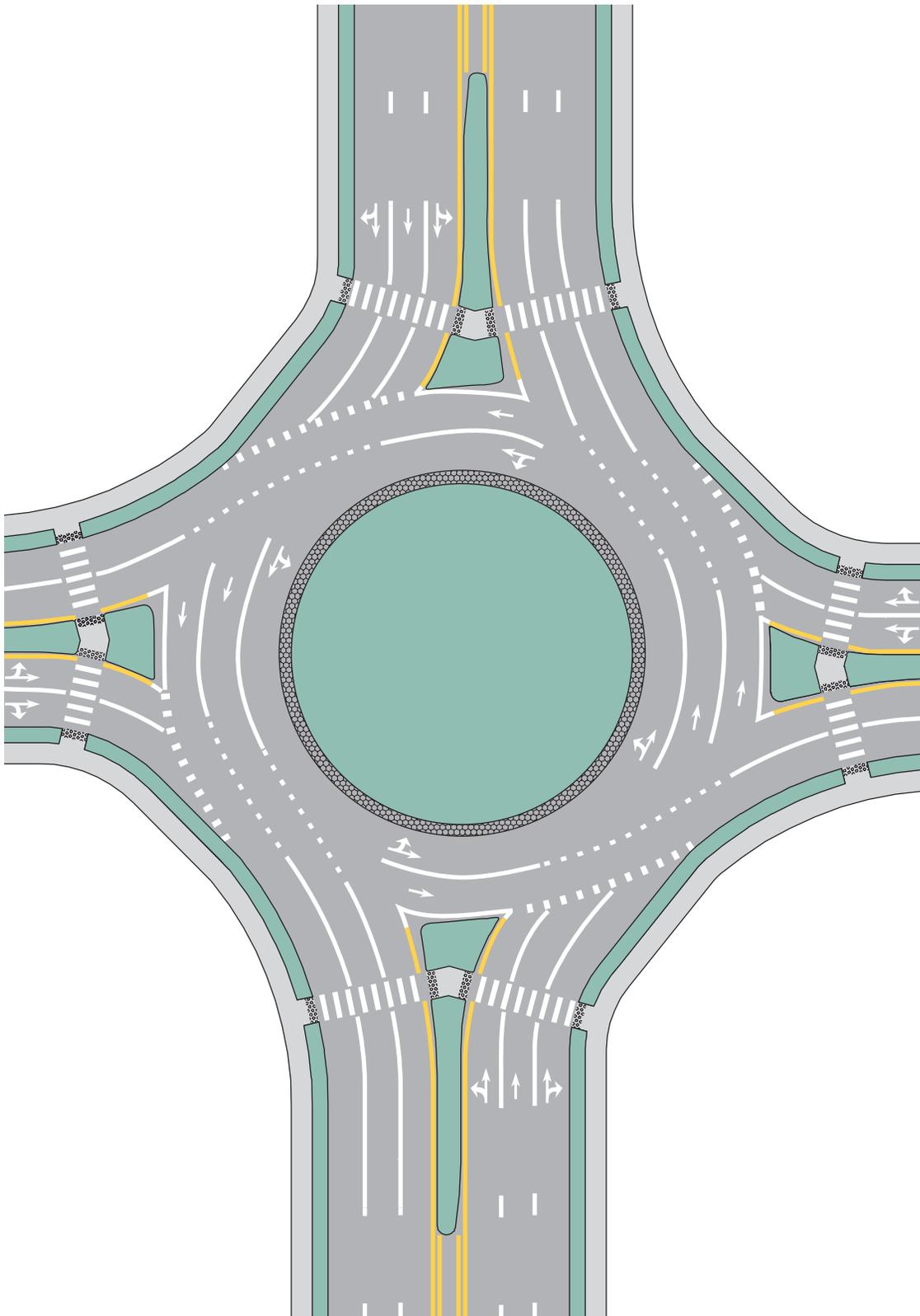


Figure 3C-12. Example of Markings for a Three-Lane Roundabout with Two-Lane Exits

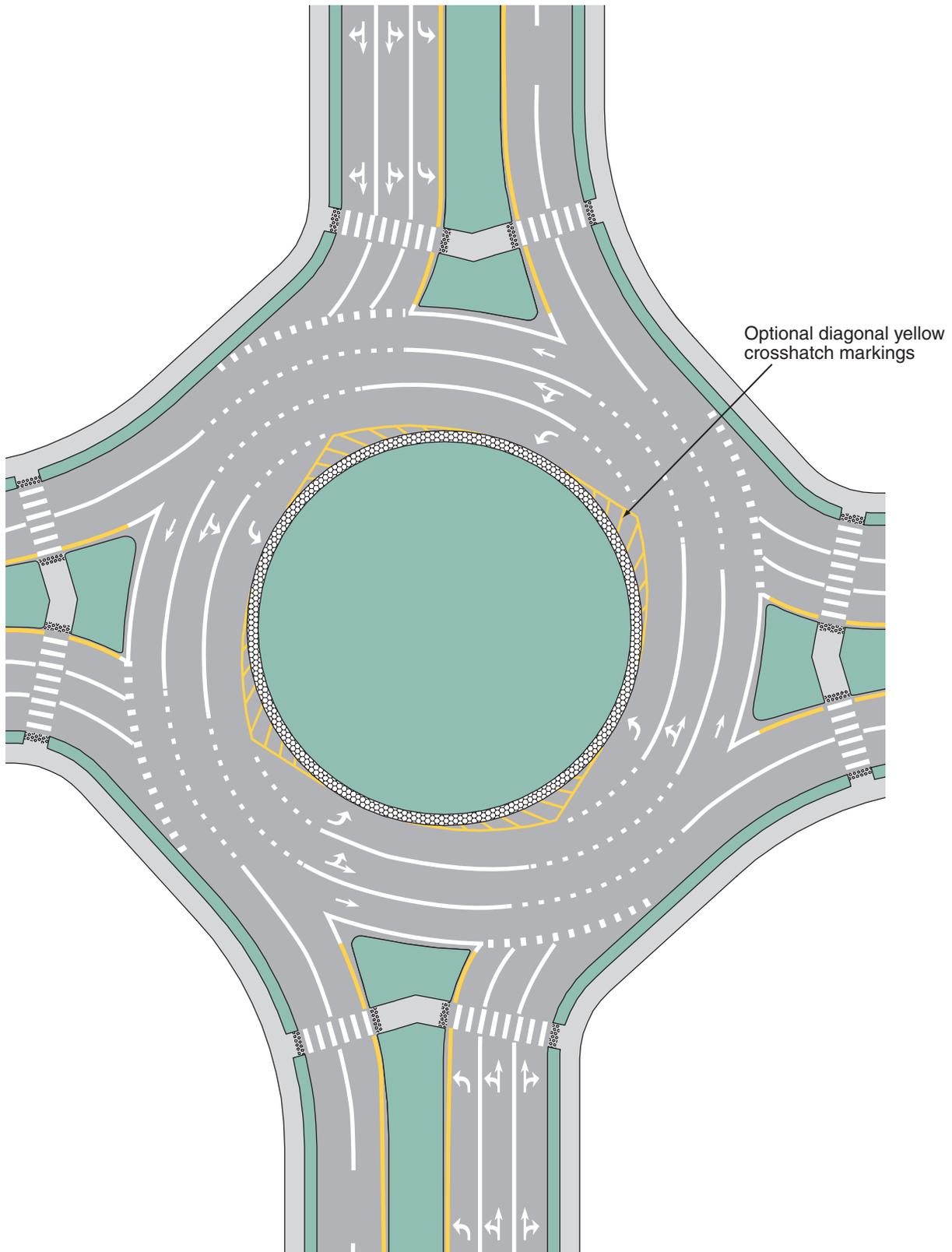


Figure 3C-13. Example of Markings for Two Linked Roundabouts

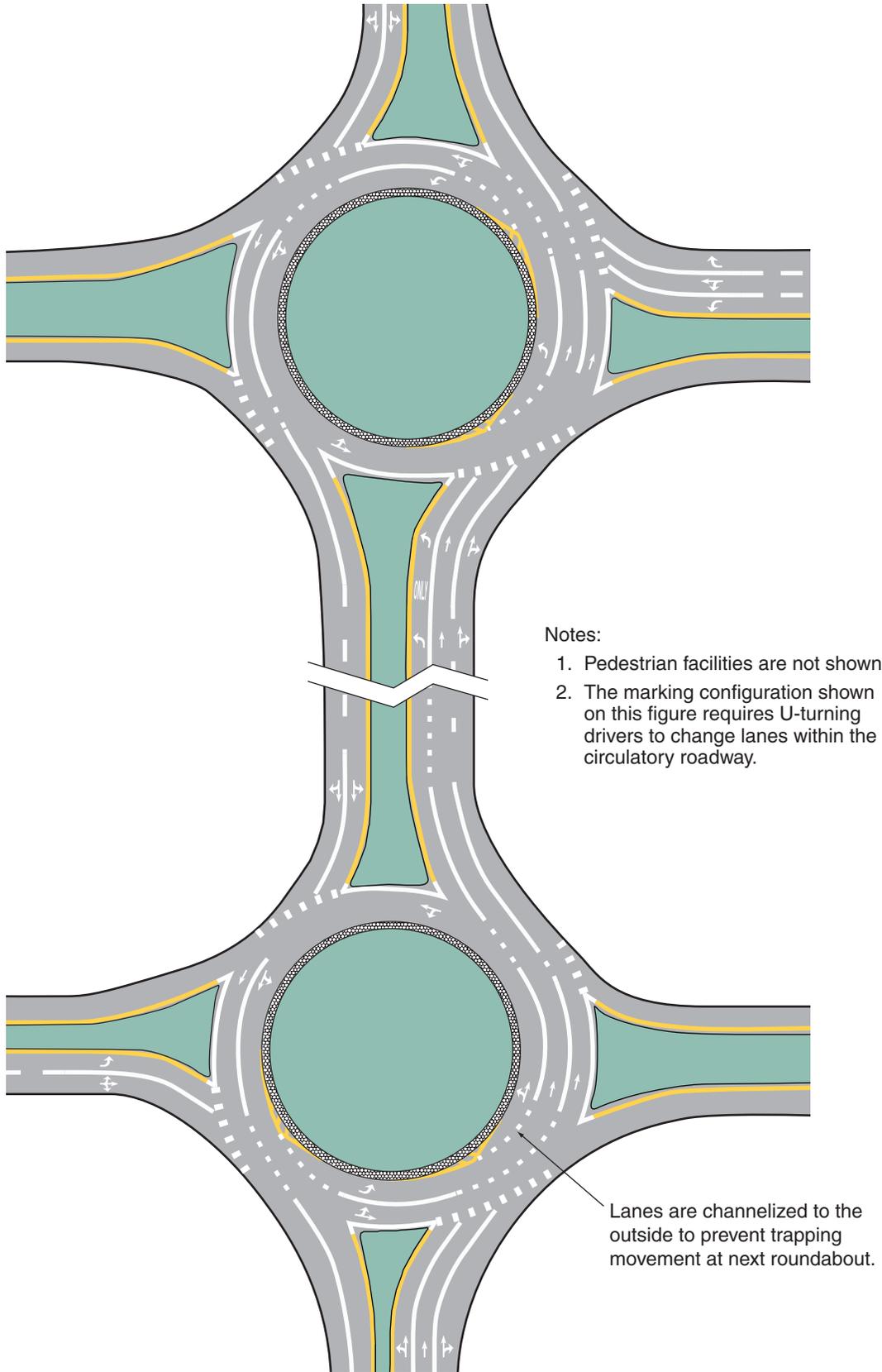
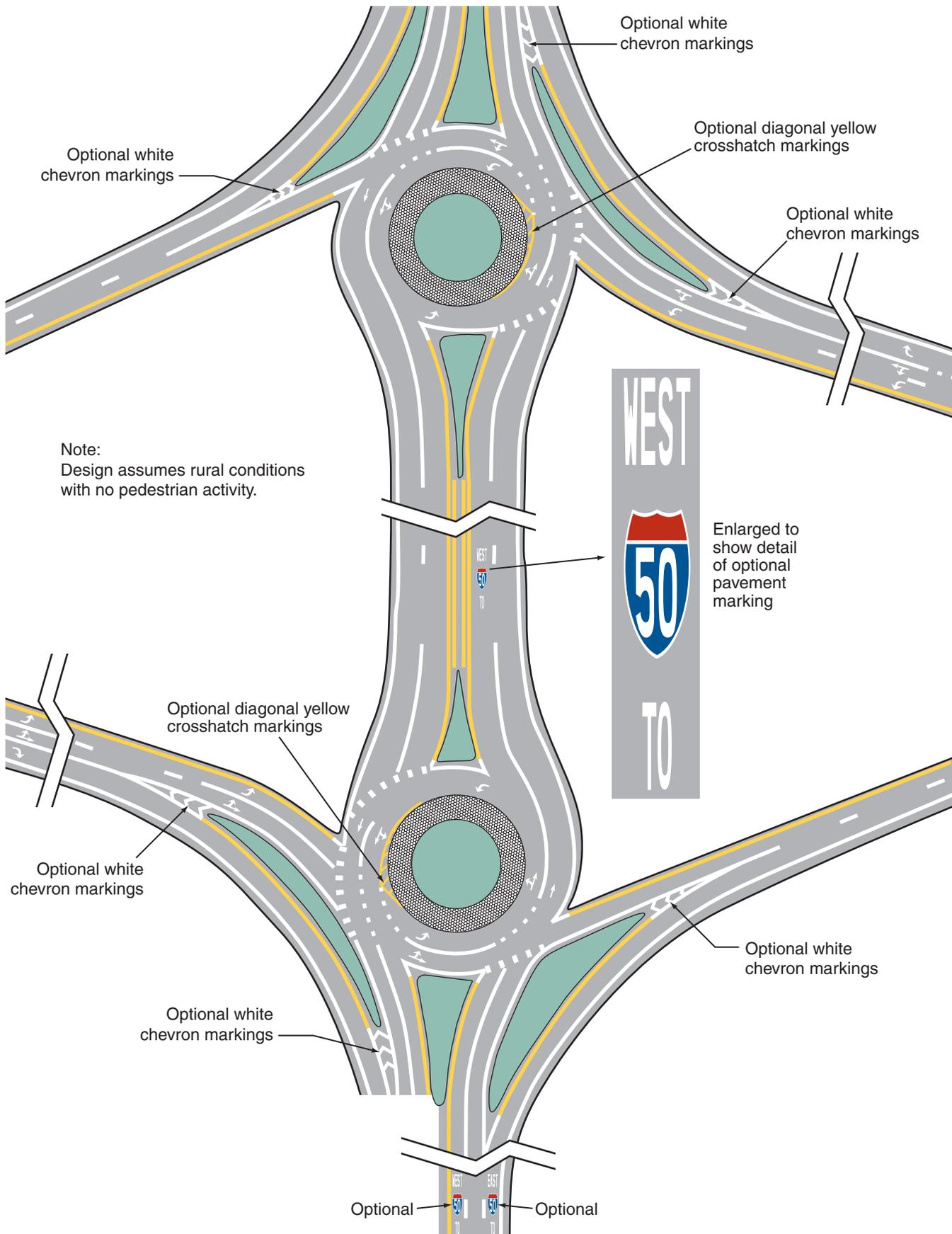


Figure 3C-14. Example of Markings for a Diamond Interchange with Two Circular-Shaped Roundabout Ramp Terminals



Section 3C.02 White Lane Line Pavement Markings for Roundabouts

Standard:

- 01 **Multi-lane approaches to roundabouts shall have lane lines.**
 02 **A through lane on a roadway that becomes a dropped lane (mandatory turn lane) at a roundabout shall be marked with a dotted white lane line in accordance with Section 3B.04.**

Guidance:

- 03 *Multi-lane roundabouts should have lane line markings within the circulatory roadway to channelize traffic to the appropriate exit lane.*

Standard:

- 04 **Continuous concentric lane lines shall not be used within the circulatory roadway of roundabouts.**

Support:

- 05 Section 9C.04 contains information regarding bicycle lane markings at roundabouts.

Section 3C.03 Edge Line Pavement Markings for Roundabout Circulatory Roadways

Guidance:

- 01 *A white edge line should be used on the outer (right-hand) side of the circulatory roadway.*
 02 *Where a white edge line is used for the circulatory roadway, it should be as follows (see Figure 3C-1):*
 A. *A solid line adjacent to the splitter island, and*
 B. *A wide dotted line across the lane(s) entering the roundabout.*

Standard:

- 03 **Edge lines and edge line extensions shall not be placed across the exits from the circulatory roadway at roundabouts.**

Option:

- 04 A yellow edge line may be placed around the inner (left-hand) edge of the circulatory roadway (see Figure 3C-1) and may be used to channelize traffic (see Drawing B of Figure 3C-4).

Section 3C.04 Yield Lines for Roundabouts

Option:

- 01 A yield line (see Section 3B.16) may be used to indicate the point behind which vehicles are required to yield at the entrance to a roundabout (see Figure 3C-1).

Section 3C.05 Crosswalk Markings at Roundabouts

Standard:

- 01 **Pedestrian crosswalks shall not be marked to or from the central island of roundabouts.**

Guidance:

- 02 *If pedestrian facilities are provided, crosswalks (see Section 3B.18) should be marked across roundabout entrances and exits to indicate where pedestrians are intended to cross.*
 03 *Crosswalks should be a minimum of 20 feet from the edge of the circulatory roadway.*

Support:

- 04 Various arrangements of crosswalks at roundabouts are illustrated in the figures in this Chapter.

Section 3C.06 Word, Symbol, and Arrow Pavement Markings for Roundabouts

Option:

- 01 Lane-use arrows may be used on any approach to and within the circulatory roadway of any roundabout.
 02 YIELD (word) and YIELD AHEAD (symbol or word) pavement markings (see Figure 3C-1) may be used on approaches to roundabouts.
 03 Word and/or route shield pavement markings may be used on an approach to or within the circulatory roadway of a roundabout to provide route and/or destination guidance information to road users (see Figure 3C-14).

Guidance:

- 04 *Within the circulatory roadway of multi-lane roundabouts, normal lane-use arrows (see Section 3B.20 and Figure 3B-24) should be used.*
 05 *On multi-lane approaches with double left-turn and/or double right-turn lanes, lane-use arrows as shown in Figures 3C-7 and 3C-8 should be used.*

Option:

- 06 If used on approaches to a roundabout, lane-use arrows may be either normal or fish-hook arrows, either with or without an oval symbolizing the central island, as shown in Figure 3C-2.

Section 3C.07 Markings for Other Circular Intersections**Support:**

- 01 Other circular intersections include, but are not limited to, rotaries, traffic circles, and residential traffic calming designs.

Option:

- 02 The markings shown in this Chapter may be used at other circular intersections if engineering judgment indicates that their presence will benefit drivers, pedestrians, or other road users.

CHAPTER 3D. MARKINGS FOR PREFERENTIAL LANES

Section 3D.01 Preferential Lane Word and Symbol Markings

Support:

- 01 Preferential lanes are established for one or more of a wide variety of special uses, including, but not limited to, high-occupancy vehicle (HOV) lanes, ETC lanes, high-occupancy toll (HOT) lanes, bicycle lanes, bus only lanes, taxi only lanes, and light rail transit only lanes.

Standard:

- 02 **When a lane is assigned full or part time to a particular class or classes of vehicles, the preferential lane word and symbol markings described in this Section and the preferential lane longitudinal markings described in Section 3D.02 shall be used.**

- 03 **All longitudinal pavement markings, as well as word and symbol pavement markings, associated with a preferential lane shall end where the Preferential Lane Ends (R3-12a or R3-12c) sign (see Section 2G.07) designating the downstream end of the preferential only lane restriction is installed.**

- 04 **Static or changeable message regulatory signs (see Sections 2G.03 to 2G.07) shall be used with preferential lane word or symbol markings.**

- 05 **All preferential lane word and symbol markings shall be white and shall be positioned laterally in the center of the preferential lane.**

- 06 **Where a preferential lane use exists contiguous to a general-purpose lane or is separated from a general-purpose lane by a flush buffered space that can be traversed by motor vehicles, the preferential lane shall be marked with one or more of the following symbol or word markings for the preferential lane use specified:**

- A. **HOV lane**—the preferential lane-use marking for high-occupancy vehicle lanes shall consist of white lines formed in a diamond shape symbol or the word message HOV. The diamond shall be at least 2.5 feet wide and 12 feet in length. The lines shall be at least 6 inches in width.
- B. **HOT lane or ETC Account-Only lane**—except as provided in Paragraph 8, the preferential lane-use marking for a HOT lane or an ETC Account-Only lane shall consist of a word marking using the name of the ETC payment system required for use of the lane, such as E-Z PASS ONLY.
- C. **Bicycle lane**—the preferential lane-use marking for a bicycle lane shall consist of a bicycle symbol or the word marking BIKE LANE (see Chapter 9C and Figures 9C-1 and 9C-3 through 9C-6).
- D. **Bus only lane**—the preferential lane-use marking for a bus only lane shall consist of the word marking BUS ONLY.
- E. **Taxi only lane**—the preferential lane-use marking for a taxi only lane shall consist of the word marking TAXI ONLY.
- F. **Light rail transit lane**—the preferential lane-use marking for a light rail transit lane shall consist of the word marking LRT ONLY.
- G. **Other type of preferential lane**—the preferential lane-use markings shall consist of a word marking appropriate to the restriction.

- 07 **If two or more preferential lane uses are permitted in a single lane, the symbol or word marking for each preferential lane use shall be installed.**

Option:

- 08 Preferential lane-use symbol or word markings may be omitted at toll plazas where physical conditions preclude the use of the markings (see Section 3E.01).

Guidance:

- 09 *The spacing of the markings should be based on engineering judgment that considers the prevailing speed, block lengths, distance from intersections, and other factors that affect clear communication to the road user.*

Support:

- 10 Markings spaced as close as 80 feet apart might be appropriate on city streets, while markings spaced as far as 1,000 feet apart might be appropriate for freeways.

Guidance:

- 11 *In addition to a regular spacing interval, the preferential lane marking should be placed at strategic locations such as major decision points, direct exit ramp departures from the preferential lane, and along access openings to and from adjacent general-purpose lanes. At decision points, the preferential lane marking should be placed on all applicable lanes and should be visible to approaching traffic for all available departures. At direct exits from preferential lanes where extra emphasis is needed, the use of word markings (such as "EXIT" or "EXIT ONLY") in the deceleration lane for the direct exit and/or on the direct exit ramp itself just beyond the exit gore should be considered.*

Option:

- 12 A numeral indicating the vehicle occupancy requirements established for a high-occupancy vehicle lane may be included in sequence after the diamond symbol or HOV word message.

Guidance:

- 13 *Engineering judgment should determine the need for supplemental devices such as tubular markers, traffic cones, or other channelizing devices (see Chapter 3H).*

Section 3D.02 Preferential Lane Longitudinal Markings for Motor Vehicles

Support:

- 01 Preferential lanes can take many forms depending on the level of usage and the design of the facility. They might be barrier-separated or buffer-separated from the adjacent general-purpose lanes, or they might be contiguous with the adjacent general-purpose lanes. Barrier-separated preferential lanes might be operated in a constant direction or be operated as reversible lanes. Some reversible preferential lanes on a divided highway might be operated counter-flow to the direction of traffic on the immediately adjacent general-purpose lanes. See Section 1A.13 for definitions of terms.

- 02 Preferential lanes might be operated full-time (24 hours per day on all days), for extended periods of the day, part-time (restricted usage during specific hours on specified days), or on a variable basis (such as a strategy for a managed lane).

Standard:

- 03 **Longitudinal pavement markings for preferential lanes shall be as follows (these same requirements are presented in tabular form in Table 3D-1):**
- A. **Barrier-separated, non-reversible preferential lane**—the longitudinal pavement markings for preferential lanes that are physically separated from the other travel lanes by a barrier or median shall consist of a normal solid single yellow line at the left-hand edge of the travel lane(s), and a normal solid single white line at the right-hand edge of the travel lane(s) (see Drawing A in Figure 3D-1).
 - B. **Barrier-separated, reversible preferential lane**—the longitudinal pavement markings for reversible preferential lanes that are physically separated from the other travel lanes by a barrier or median shall consist of a normal solid single white line at both edges of the travel lane(s) (see Drawing B in Figure 3D-1).
 - C. **Buffer-separated (left-hand side) preferential lane**—the longitudinal pavement markings for a full-time or part-time preferential lane on the left-hand side of and separated from the other travel lanes by a neutral buffer space shall consist of a normal solid single yellow line at the left-hand edge of the preferential travel lane(s) and one of the following at the right-hand edge of the preferential travel lane(s):
 1. A wide solid double white line along both edges of the buffer space where crossing the buffer space is prohibited (see Drawing A in Figure 3D-2).
 2. A wide solid single white line along both edges of the buffer space where crossing the buffer space is discouraged (see Drawing B in Figure 3D-2).
 3. A wide broken single white line along both edges of the buffer space, or a wide broken single white lane line within the allocated buffer space (resulting in wider lanes), where crossing the buffer space is permitted (see Drawing C in Figure 3D-2).
 - D. **Buffer-separated (right-hand side) preferential lane**—the longitudinal pavement markings for a full-time or part-time preferential lane on the right-hand side of and separated from the other travel lanes by a neutral buffer space shall consist of a normal solid single white line at the right-hand edge of the preferential travel lane(s) if warranted (see Section 3B.07) and one of the following at the left-hand edge of the preferential travel lane(s) (see Drawing D in Figure 3D-2):
 1. A wide solid double white line along both edges of the buffer space where crossing the buffer space is prohibited.
 2. A wide solid single white line along both edges of the buffer space where crossing of the buffer space is discouraged.
 3. A wide broken single white line along both edges of the buffer space, or a wide broken single white line within the allocated buffer space (resulting in wider lanes), where crossing the buffer space is permitted.
 4. A wide dotted single white lane line within the allocated buffer space (resulting in wider lanes) where crossing the buffer space is permitted for any vehicle to perform a right-turn maneuver.

Table 3D-1. Standard Edge Line and Lane Line Markings for Preferential Lanes

Type of Preferential Lane	Left-Hand Edge Line	Right-Hand Edge Line
Barrier-Separated, Non-Reversible	A normal solid single yellow line	A normal solid single white line (see Drawing A of Figure 3D-1)
Barrier-Separated, Reversible	A normal solid single white line	A normal solid single white line (see Drawing B of Figure 3D-1)
Buffer-Separated, Left-Hand Side	A normal solid single yellow line	A wide solid double white line along both edges of the buffer space where crossing is prohibited (see Drawing A of Figure 3D-2) A wide solid single white line along both edges of the buffer space where crossing is discouraged (see Drawing B of Figure 3D-2) A wide broken single white line along both edges of the buffer space, or a wide broken single white line within the buffer space (resulting in wider lanes), where crossing is permitted (see Drawing C of Figure 3D-2)
Buffer-Separated, Right-Hand Side	A wide solid double white line along both edges of the buffer space where crossing is prohibited (see Drawing D of Figure 3D-2) A wide solid single white line along both edges of the buffer space where crossing is discouraged (see Drawing D of Figure 3D-2) A wide broken single white line along both edges of the buffer space, or a wide broken single white line within the buffer space (resulting in wider lanes), where crossing is permitted (see Drawing D of Figure 3D-2) A wide dotted single white line within the buffer space (resulting in wider lanes) where crossing is permitted for any vehicle to perform a right-turn maneuver (see Drawing D of Figure 3D-2)	A normal solid single white line (if warranted)
Contiguous, Left-Hand Side	A normal solid single yellow line	A wide solid double white line where crossing is prohibited (see Drawing A of Figure 3D-3) A wide solid single white line where crossing is discouraged (see Drawing B of Figure 3D-3) A wide broken single white line where crossing is permitted (see Drawing C of Figure 3D-3)
Contiguous, Right-Hand Side	A wide solid double white line where crossing is prohibited (see Drawing D of Figure 3D-3) A wide solid single white line where crossing is discouraged (see Drawing D of Figure 3D-3) A wide broken single white line where crossing is permitted (see Drawing D of Figure 3D-3) A wide dotted single white line where crossing is permitted for any vehicle to perform a right-turn maneuver (see Drawing D of Figure 3D-3)	A normal solid single white line

Notes: 1. If there are two or more preferential lanes, the lane lines between the preferential lanes shall be normal broken white lines.
2. The standard lane markings listed in this table are provided in a tabular format for reference.
3. This information is also described in Paragraph 3 of Section 3D.02.

- E. Contiguous (left-hand side) preferential lane—the longitudinal pavement markings for a full-time or part-time preferential lane on the left-hand side of and contiguous to the other travel lanes shall consist of a normal solid single yellow line at the left-hand edge of the preferential travel lane(s) and one of the following at the right-hand edge of the preferential travel lane(s):**
1. A wide solid double white lane line where crossing is prohibited (see Drawing A in Figure 3D-3).
 2. A wide solid single white lane line where crossing is discouraged (see Drawing B in Figure 3D-3).
 3. A wide solid single white lane line where crossing is permitted (see Drawing C in Figure 3D-3).
- F. Contiguous (right-hand side) preferential lane—the longitudinal pavement markings for a full-time or part-time preferential lane on the right-hand side of and contiguous to the other travel lanes shall consist of a normal solid single white line at the right-hand edge of the preferential travel lane(s) if warranted (see Section 3B.07) and one of the following at the left-hand edge of the preferential travel lane(s) (see Drawing D in Figure 3D-3):**
1. A wide solid double white lane line where crossing is prohibited.
 2. A wide solid single white lane line where crossing is discouraged.
 3. A wide broken single white lane line where crossing is permitted.
 4. A wide dotted single white lane line where crossing is permitted for any vehicle to perform a right-turn maneuver.

Figure 3D-1. Markings for Barrier-Separated Preferential Lanes

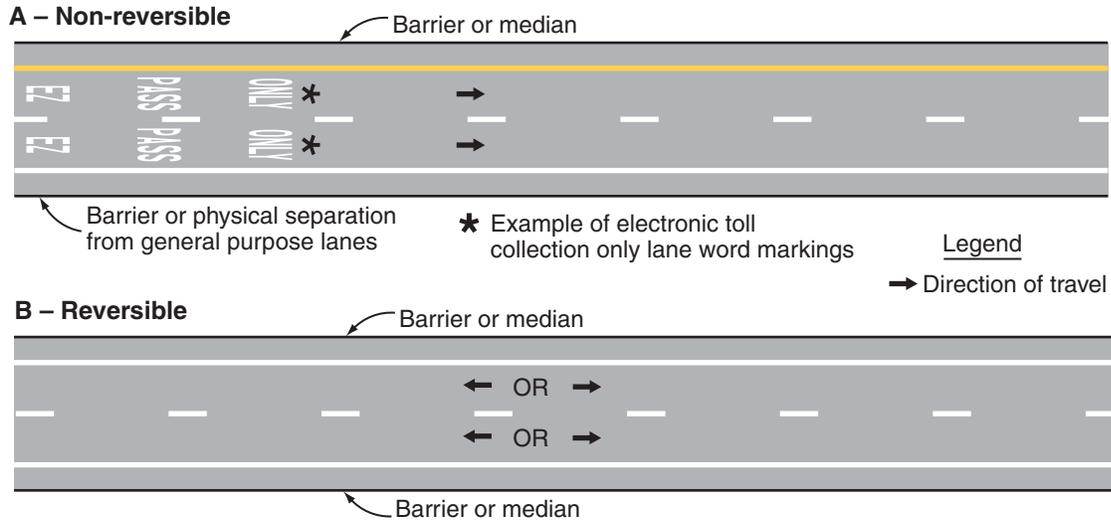


Figure 3D-2. Markings for Buffer-Separated Preferential Lanes (Sheet 1 of 2)

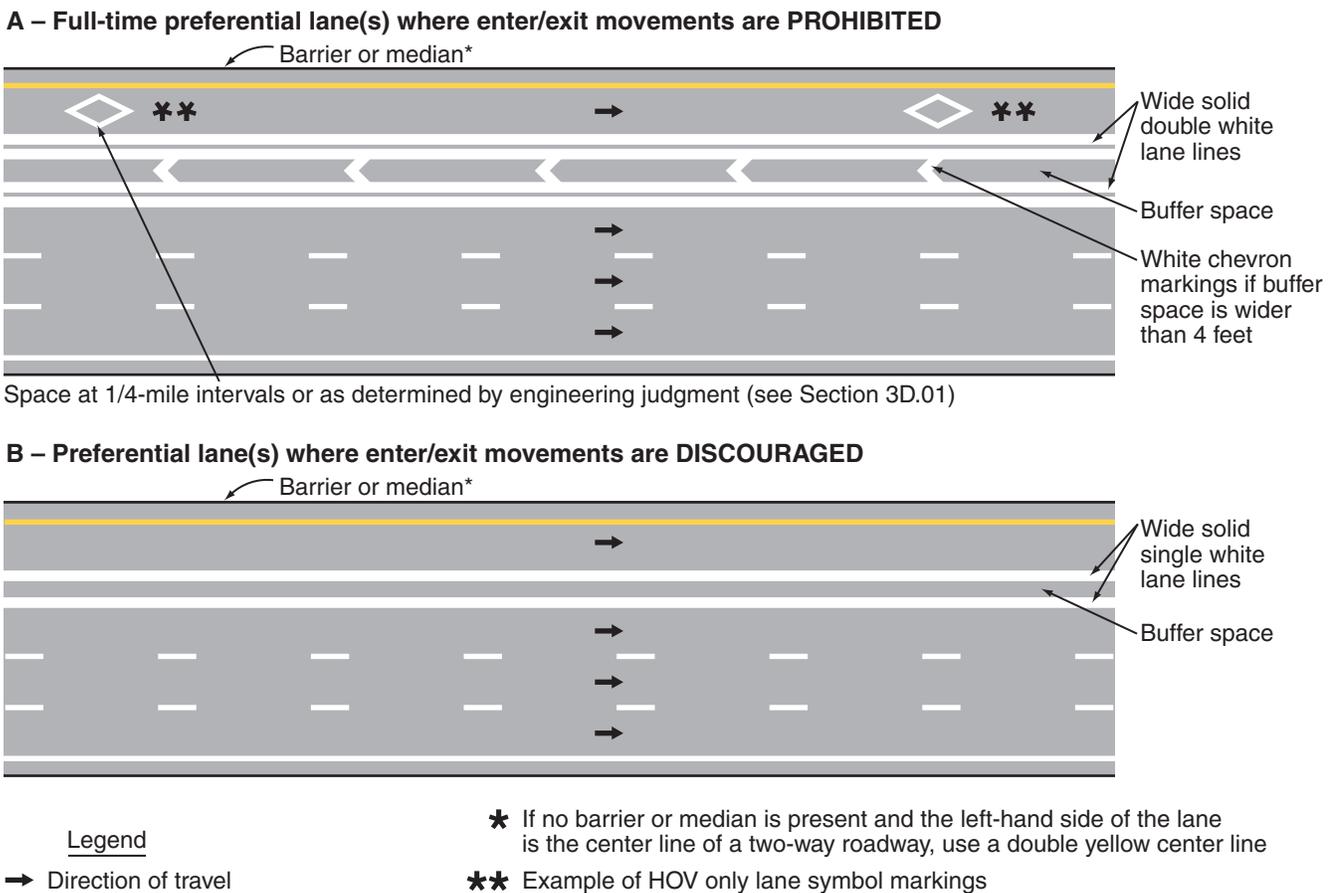
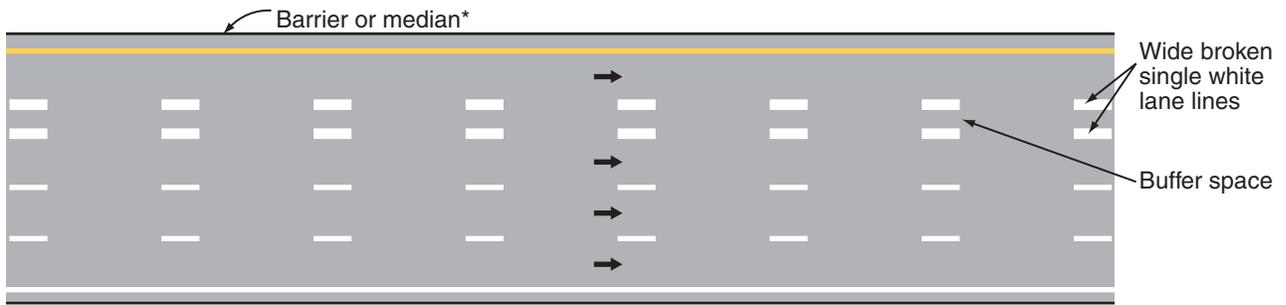
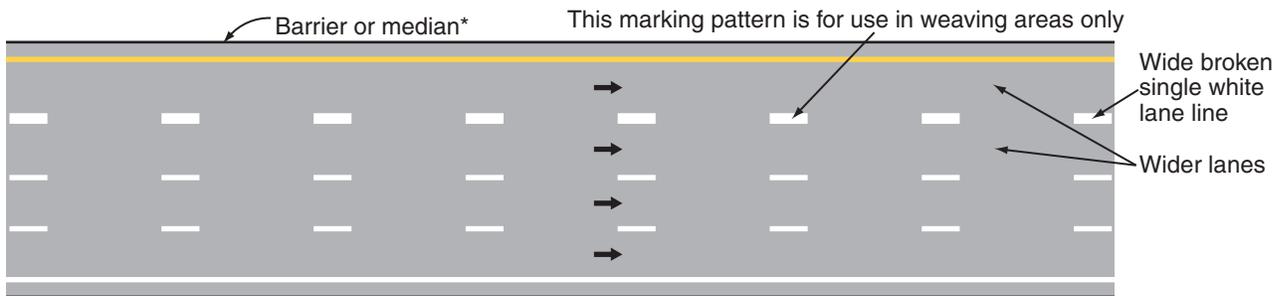


Figure 3D-2. Markings for Buffer-Separated Preferential Lanes (Sheet 2 of 2)

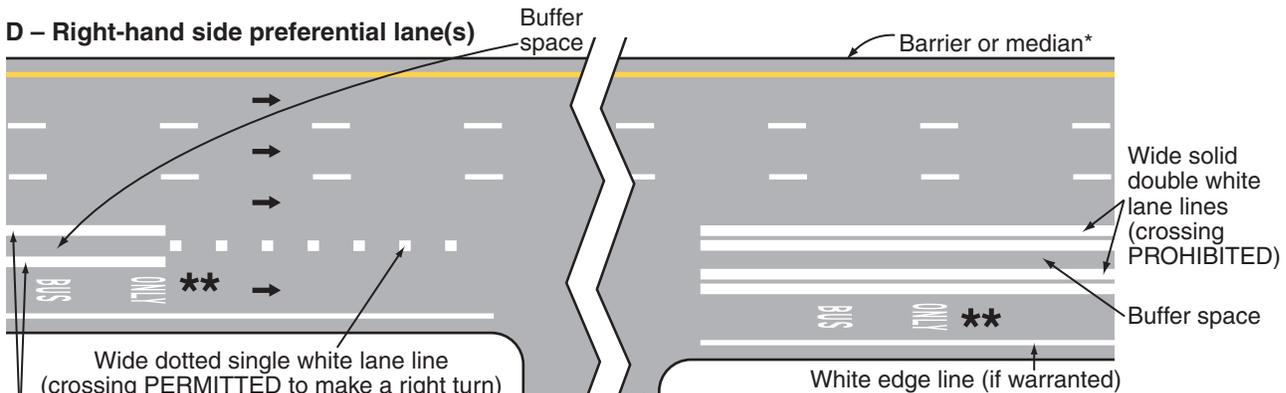
C – Preferential lane(s) where enter/exit movements are PERMITTED



OR



D – Right-hand side preferential lane(s)

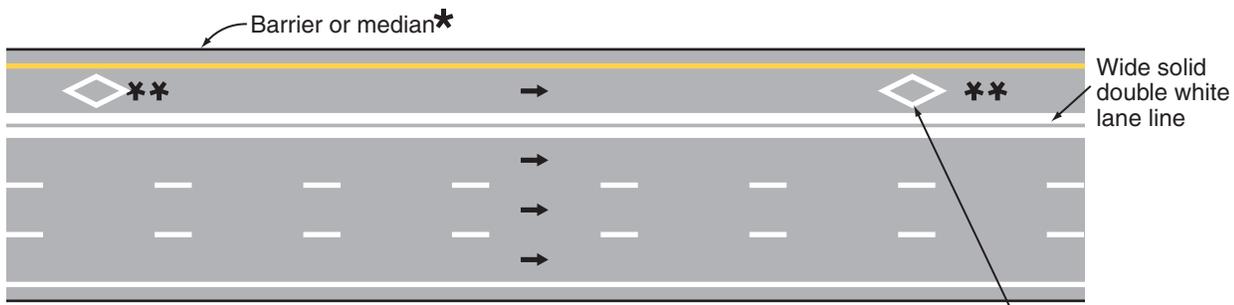


Legend
 → Direction of travel

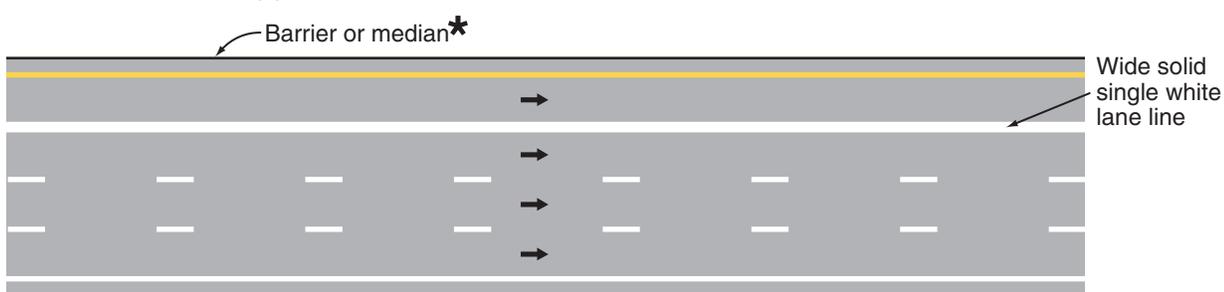
- * If no barrier or median is present and the left-hand side of the lane is the center line of a two-way roadway, use a double yellow center line
- ** Example of bus lane word markings

Figure 3D-3. Markings for Contiguous Preferential Lanes

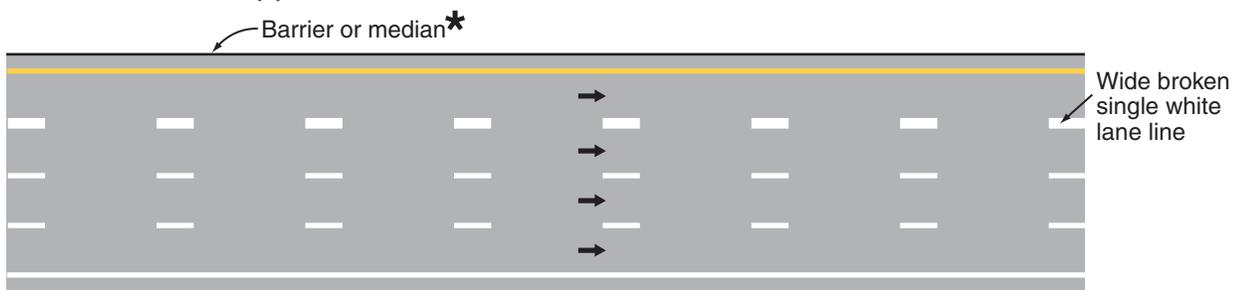
A – Full-time preferential lane(s) where enter/exit movements are PROHIBITED



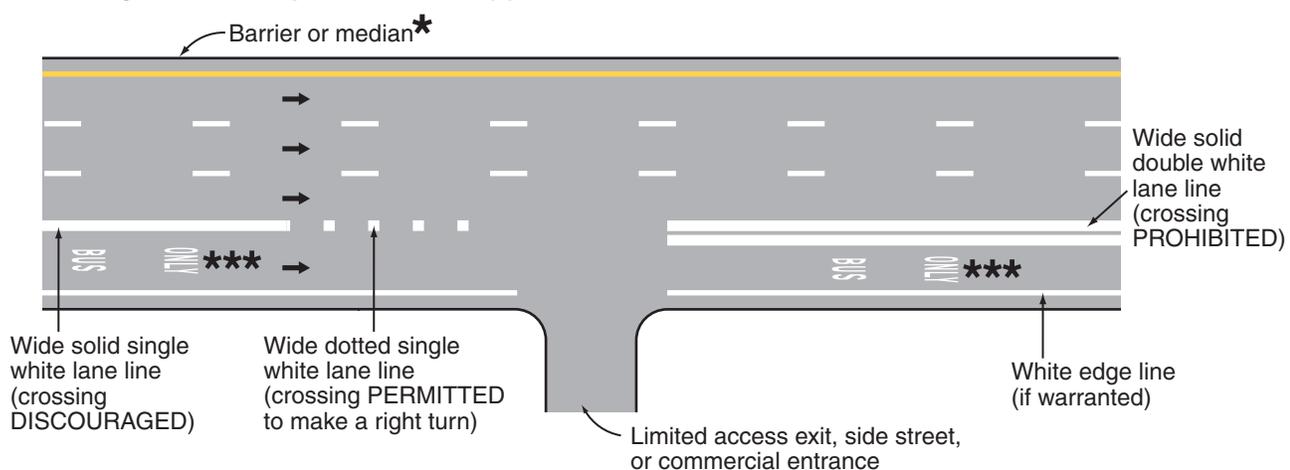
B – Preferential lane(s) where enter/exit movements are DISCOURAGED Space at 1/4-mile intervals



C – Preferential lane(s) where enter/exit movements are PERMITTED



D – Right-hand side preferential lane(s)



Legend
 → Direction of travel

- * If no barrier or median is present and the left-hand side of the lane is the center line of a two-way roadway, use a double yellow center line
- ** Example of HOV only lane symbol markings
- *** Example of bus lane word markings

Guidance:

- 04 *Where preferential lanes and other travel lanes are separated by a buffer space wider than 4 feet and crossing the buffer space is prohibited, chevron markings (see Section 3B.24) should be placed in the buffer area (see Drawing A in Figure 3D-2). The chevron spacing should be 100 feet or greater.*

Option:

- 05 If a full-time or part-time contiguous preferential lane is separated from the other travel lanes by a wide broken single white line (see Drawing C in Figure 3D-3), the spacing or skip pattern of the line may be reduced and the width of the line may be increased.

Standard:

- 06 **If there are two or more preferential lanes for traffic moving in the same direction, the lane lines between the preferential lanes shall be normal broken white lines.**
- 07 **Preferential lanes for motor vehicles shall also be marked with the appropriate word or symbol pavement markings in accordance with Section 3D.01 and shall have appropriate regulatory signs in accordance with Sections 2G.03 through 2G.07.**

Guidance:

- 08 *At direct exits from a preferential lane, dotted white line markings should be used to separate the tapered or parallel deceleration lane for the direct exit (including the taper) from the adjacent continuing preferential through lane, to reduce the chance of unintended exit maneuvers.*

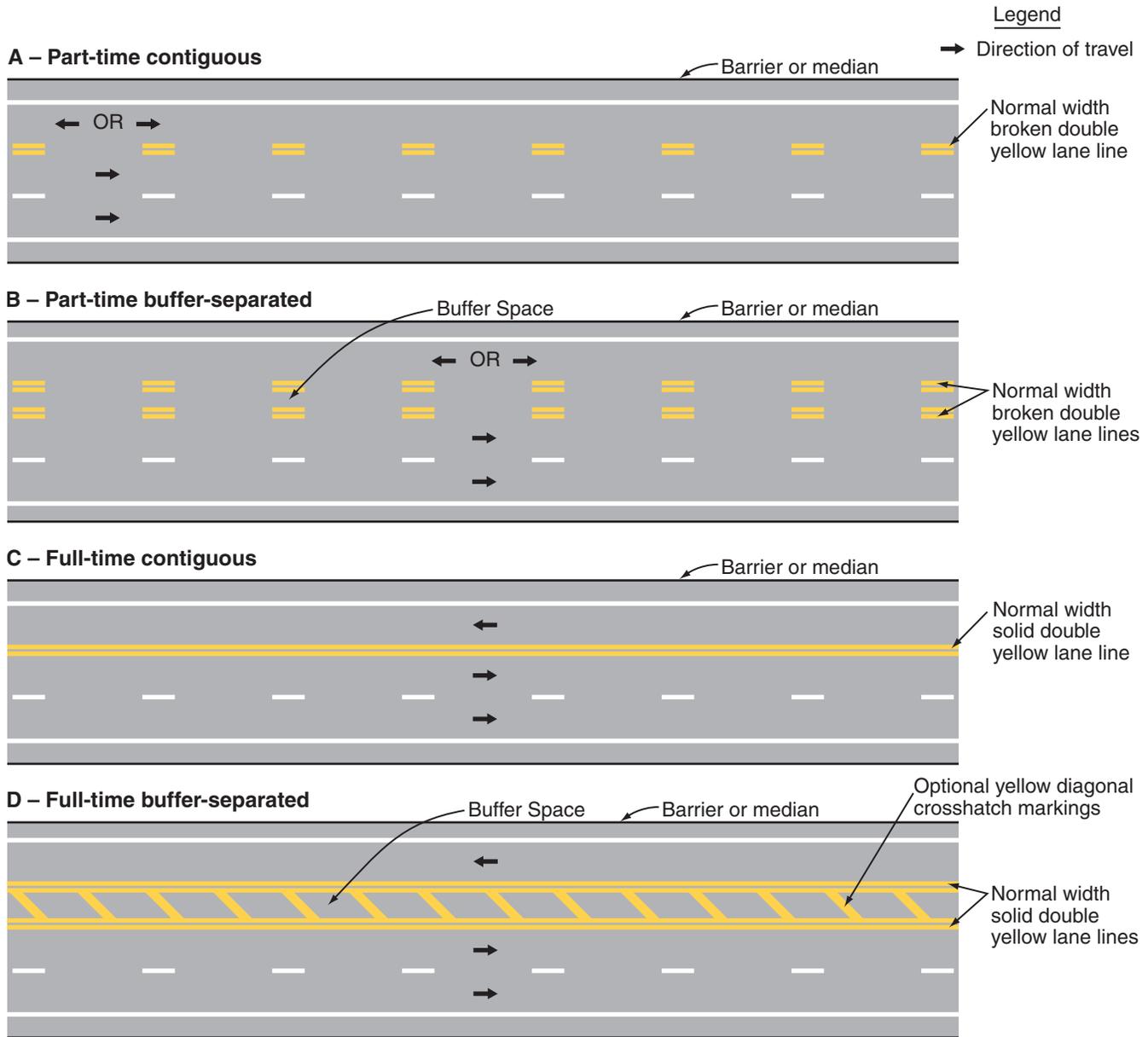
Standard:

- 09 **On a divided highway, a part-time counter-flow preferential lane that is contiguous to the travel lanes in the opposing direction shall be separated from the opposing direction lanes by the standard reversible lane longitudinal marking, a normal width broken double yellow line (see Section 3B.03 and Drawing A of Figure 3D-4). If a buffer space is provided between the part-time counter-flow preferential lane and the opposing direction lanes, a normal width broken double yellow line shall be placed along both edges of the buffer space (see Drawing B of Figure 3D-4). Signs (see Section 2B.26), lane-use control signals (see Chapter 4M), or both shall be used to supplement the reversible lane markings.**
- 10 **On a divided highway, a full-time counter-flow preferential lane that is contiguous to the travel lanes in the opposing direction shall be separated from the opposing direction lanes by a solid double yellow center line marking (see Drawing C of Figure 3D-4). If a buffer space is provided between the full-time counter-flow preferential lane and the opposing direction lanes, a normal width solid double yellow line shall be placed along both edges of the buffer space (see Drawing D of Figure 3D-4).**

Option:

- 11 Cones, tubular markers, or other channelizing devices (see Chapter 3H) may also be used to separate the opposing lanes when a counter-flow preferential lane operation is in effect.

Figure 3D-4. Markings for Counter-Flow Preferential Lanes on Divided Highways



CHAPTER 3E. MARKINGS FOR TOLL PLAZAS

Section 3E.01 Markings for Toll Plazas

Support:

- 01 At toll plazas, pavement markings help road users identify the proper lane(s) to use for the type of toll payment they plan to use, to channelize movements into the various lanes, and to delineate obstructions in the roadway.

Standard:

- 02 **When a lane on the approach to a toll plaza is restricted to use only by vehicles with registered ETC accounts, the ETC Account-Only lane word markings described in Section 3D.01 and the preferential lane longitudinal markings described in Section 3D.02 shall be used. When one or more ORT lanes that are restricted to use only by vehicles with registered ETC accounts bypass a mainline toll plaza on a separate alignment, these word markings and longitudinal markings shall be used on the approach to the point where the ORT lanes diverge from the lanes destined for the mainline toll plaza.**

Option:

- 03 Preferential lane-use symbol or word markings may be omitted at toll plazas where physical conditions preclude the use of the markings.

Guidance:

- 04 *If an ORT lane that is immediately adjacent to a mainline toll plaza is not separated from adjacent cash payment toll plaza lanes by a curb or barrier, then channelizing devices (see Section 3H.01), and/or longitudinal pavement markings that discourage or prohibit lane changing should be used to separate the ORT lane from the adjacent cash payment lane. This separation should begin on the approach to the mainline toll plaza at approximately the point where the vehicle speeds in the adjacent cash lanes drop below 30 mph during off-peak periods and should extend downstream beyond the toll plaza approximately to the point where the vehicles departing the toll plaza in the adjacent cash lanes have accelerated to 30 mph.*

Option:

- 05 For a toll plaza approach lane that is restricted to use only by vehicles with registered ETC accounts, the solid white lane line or edge line on the right-hand side of the ETC Account-Only lane and the solid white lane line or solid yellow edge line on the left-hand side of the ETC Account-Only lane may be supplemented with purple solid longitudinal markings placed contiguous to the inside edges of the lines defining the lane.

Standard:

- 06 **If used, the purple solid longitudinal marking described in the previous paragraph shall be a minimum of 3 inches in width and a maximum width equal to the width of the line it supplements, and ETC Account-Only preferential lane word markings (see Section 3D.01) shall be installed within the lane.**
- 07 **Toll booths and the islands on which they are located are considered to be obstructions in the roadway and they shall be provided with markings that comply with the provisions of Section 3B.10 and Chapter 3G.**

Option:

- 08 Longitudinal pavement markings may be omitted alongside toll booth islands between the approach markings and any departure markings.

CHAPTER 3F. DELINEATORS

Section 3F.01 Delineators

Support:

- 01 Delineators are particularly beneficial at locations where the alignment might be confusing or unexpected, such as at lane-reduction transitions and curves. Delineators are effective guidance devices at night and during adverse weather. An important advantage of delineators in certain locations is that they remain visible when the roadway is wet or snow covered.
- 02 Delineators are considered guidance devices rather than warning devices.

Option:

- 03 Delineators may be used on long continuous sections of highway or through short stretches where there are changes in horizontal alignment.

Section 3F.02 Delineator Design

Standard:

- 01 **Delineators shall consist of retroreflective devices that are capable of clearly retroreflecting light under normal atmospheric conditions from a distance of 1,000 feet when illuminated by the high beams of standard automobile lights.**
- 02 **Retroreflective elements for delineators shall have a minimum dimension of 3 inches.**

Support:

- 03 Within a series of delineators along a roadway, delineators for a given direction of travel at a specific location are referred to as single delineators if they have one retroreflective element for that direction, double delineators if they have two identical retroreflective elements for that direction mounted together, or vertically elongated delineators if they have a single retroreflective element with an elongated vertical dimension to approximate the vertical dimension of two separate single delineators.

Option:

- 04 A vertically elongated delineator of appropriate size may be used in place of a double delineator.

Section 3F.03 Delineator Application

Standard:

- 01 **The color of delineators shall comply with the color of edge lines stipulated in Section 3B.06.**
- 02 **A series of single delineators shall be provided on the right-hand side of freeways and expressways and on at least one side of interchange ramps, except when either Condition A or Condition B is met, as follows:**
- A. On tangent sections of freeways and expressways when both of the following conditions are met:**
1. **Raised pavement markers are used continuously on lane lines throughout all curves and on all tangents to supplement pavement markings, and**
 2. **Roadside delineators are used to lead into all curves.**
- B. On sections of roadways where continuous lighting is in operation between interchanges.**

Option:

- 03 Delineators may be provided on other classes of roads. A series of single delineators may be provided on the left-hand side of roadways.

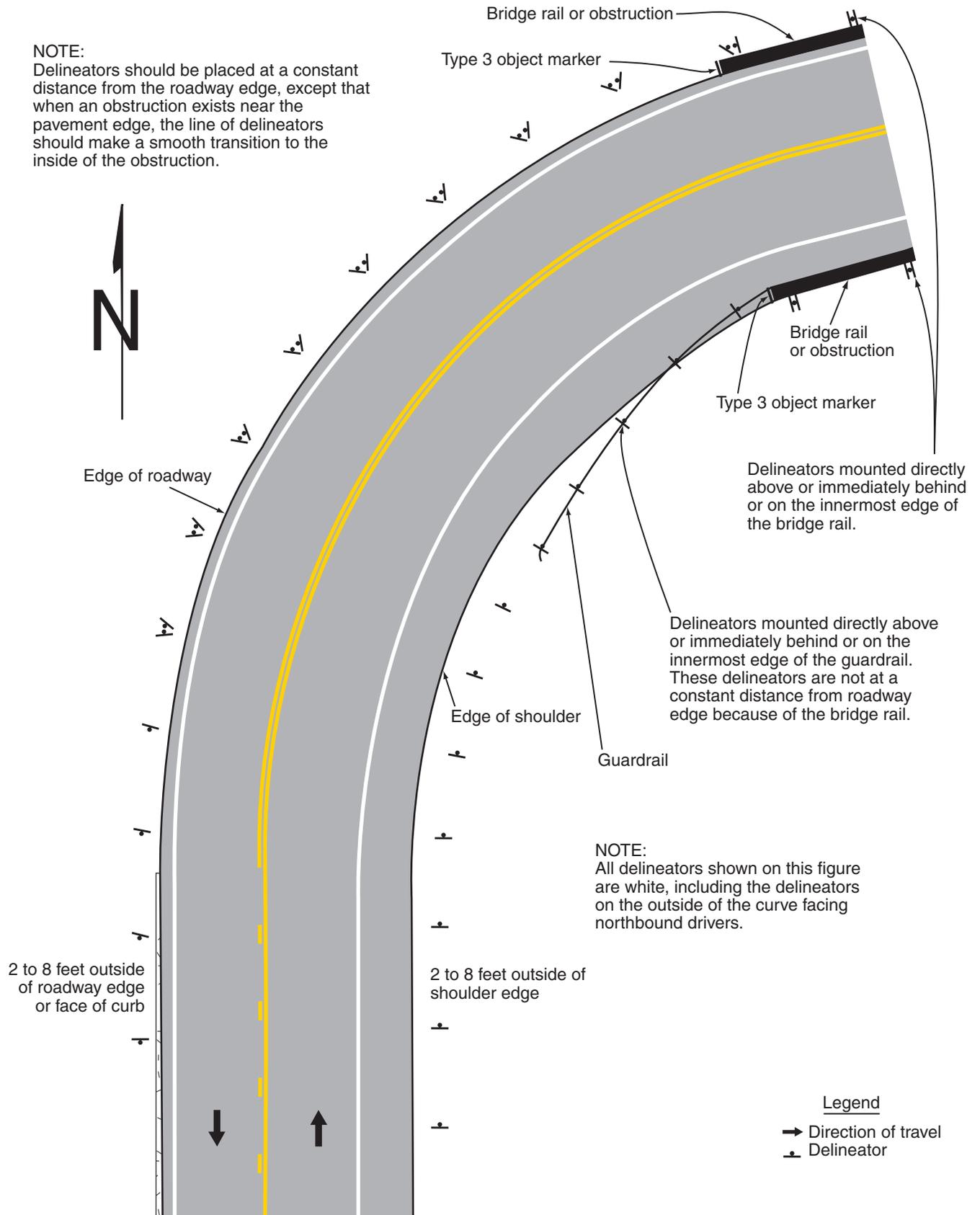
Standard:

- 04 **Delineators on the left-hand side of a two-way roadway shall be white (see Figure 3F-1).**

Guidance:

- 05 *A series of single delineators should be provided on the outside of curves on interchange ramps.*
- 06 *Where median crossovers are provided for official or emergency use on divided highways and where these crossovers are to be marked, a double yellow delineator should be placed on the left-hand side of the through roadway on the far side of the crossover for each roadway.*
- 07 *Double or vertically elongated delineators should be installed at 100-foot intervals along acceleration and deceleration lanes.*
- 08 *A series of delineators should be used wherever guardrail or other longitudinal barriers are present along a roadway or ramp.*

Figure 3F-1. Examples of Delineator Placement



Option:

09 Red delineators may be used on the reverse side of any delineator where it would be viewed by a road user traveling in the wrong direction on that particular ramp or roadway.

10 Delineators of the appropriate color may be used to indicate a lane-reduction transition where either an outside or inside lane merges into an adjacent lane.

Guidance:

11 *When used for lane-reduction transitions, the delineators should be installed adjacent to the lane or lanes reduced for the full length of the transition and should be so placed and spaced to show the reduction (see Figure 3B-14).*

Support:

12 Delineators are not necessary for traffic moving in the direction of a wider pavement or on the side of the roadway where the alignment is not affected by the lane-reduction transition.

Guidance:

13 *On a highway with continuous delineation on either or both sides, delineators should be carried through transitions.*

Option:

14 On a highway with continuous delineation on either or both sides, the spacing between a series of delineators may be closer.

Standard:

15 **When used on a truck escape ramp, delineators shall be red.**

Guidance:

16 *Red delineators should be placed on both sides of truck escape ramps. The delineators should be spaced at 50-foot intervals for a distance sufficient to identify the ramp entrance. Delineator spacing beyond the ramp entrance should be adequate for guidance according to the length and design of the escape ramp.*

Section 3F.04 Delineator Placement and Spacing**Guidance:**

01 *Delineators should be mounted on suitable supports at a mounting height, measured vertically from the bottom of the lowest retroreflective device to the elevation of the near edge of the roadway, of approximately 4 feet.*

Option:

02 When mounted on the face of or on top of guardrails or other longitudinal barriers, delineators may be mounted at a lower elevation than the normal delineator height recommended in Paragraph 1.

Guidance:

03 *Delineators should be placed 2 to 8 feet outside the outer edge of the shoulder, or if appropriate, in line with the roadside barrier that is 8 feet or less outside the outer edge of the shoulder.*

04 *Delineators should be placed at a constant distance from the edge of the roadway, except that where an obstruction intrudes into the space between the pavement edge and the extension of the line of the delineators, the delineators should be transitioned to be in line with or inside the innermost edge of the obstruction. If the obstruction is a guardrail or other longitudinal barrier, the delineators should be transitioned to be just behind, directly above (in line with), or on the innermost edge of the guardrail or longitudinal barrier.*

05 *Delineators should be spaced 200 to 530 feet apart on mainline tangent sections. Delineators should be spaced 100 feet apart on ramp tangent sections.*

Support:

06 Examples of delineator installations are shown in Figure 3F-1.

Option:

07 When uniform spacing is interrupted by such features as driveways and intersections, delineators which would ordinarily be located within the features may be relocated in either direction for a distance not exceeding one quarter of the uniform spacing. Delineators still falling within such features may be eliminated.

08 Delineators may be transitioned in advance of a lane transition or obstruction as a guide for oncoming traffic.

Guidance:

- 09 *The spacing of delineators should be adjusted on approaches to and throughout horizontal curves so that several delineators are always simultaneously visible to the road user. The approximate spacing shown in Table 3F-1 should be used.*

Option:

- 10 When needed for special conditions, delineators of the appropriate color may be mounted in a closely-spaced manner on the face of or on top of guardrails or other longitudinal barriers to form a continuous or nearly continuous “ribbon” of delineation.

Table 3F-1. Approximate Spacing for Delineators on Horizontal Curves

Radius (R) of Curve	Approximate Spacing (S) on Curve
50 feet	20 feet
115 feet	25 feet
180 feet	35 feet
250 feet	40 feet
300 feet	50 feet
400 feet	55 feet
500 feet	65 feet
600 feet	70 feet
700 feet	75 feet
800 feet	80 feet
900 feet	85 feet
1,000 feet	90 feet

- Notes:
1. Spacing for specific radii may be interpolated from table.
 2. The minimum spacing should be 20 feet.
 3. The spacing on curves should not exceed 300 feet.
 4. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet.
 5. S refers to the delineator spacing for specific radii computed from the formula $S=3\sqrt{R-50}$.
 6. The distances for S shown in the table above were rounded to the nearest 5 feet.

CHAPTER 3G. COLORED PAVEMENTS

Section 3G.01 General

Support:

- 01 Colored pavements consist of differently colored road paving materials, such as colored asphalt or concrete, or paint or other marking materials applied to the surface of a road or island to simulate a colored pavement.
- 02 If non-retroreflective colored pavement, including bricks and other types of patterned surfaces, is used as a purely aesthetic treatment and is not intended to communicate a regulatory, warning, or guidance message to road users, the colored pavement is not considered to be a traffic control device, even if it is located between the lines of a crosswalk.

Standard:

- 03 **If colored pavement is used within the traveled way, on flush or raised islands, or on shoulders to regulate, warn, or guide traffic or if retroreflective colored pavement is used, the colored pavement is considered to be a traffic control device and shall be limited to the following colors and applications:**
- A. **Yellow pavement color shall be used only for flush or raised median islands separating traffic flows in opposite directions or for left-hand shoulders of roadways of divided highways or one-way streets or ramps.**
 - B. **White pavement color shall be used for flush or raised channelizing islands where traffic passes on both sides in the same general direction or for right-hand shoulders.**

- 04 **Colored pavements shall not be used as a traffic control device, unless the device is applicable at all times.**

Guidance:

- 05 *Colored pavements used as traffic control devices should be used only where they contrast significantly with adjoining paved areas.*
- 06 *Colored pavement located between crosswalk lines should not use colors or patterns that degrade the contrast of white crosswalk lines, or that might be mistaken by road users as a traffic control application.*

CHAPTER 3H. CHANNELIZING DEVICES USED FOR EMPHASIS OF PAVEMENT MARKING PATTERNS

Section 3H.01 Channelizing Devices

Option:

- 01 Channelizing devices, as described in Sections 6F.63 through 6F.73, and 6F.75, and as shown in Figure 6F-7, such as cones, tubular markers, vertical panels, drums, lane separators, and raised islands, may be used for general traffic control purposes such as adding emphasis to reversible lane delineation, channelizing lines, or islands. Channelizing devices may also be used along a center line to preclude turns or along lane lines to preclude lane changing, as determined by engineering judgment.

Standard:

- 02 **Except for color, the design of channelizing devices, including but not limited to retroreflectivity, minimum dimensions, and mounting height, shall comply with the provisions of Chapter 6F.**
- 03 **The color of channelizing devices used outside of temporary traffic control zones shall be either orange or the same color as the pavement marking that they supplement, or for which they are substituted.**
- 04 **For nighttime use, channelizing devices shall be retroreflective (as described in Part 6) or internally illuminated. On channelizing devices used outside of temporary traffic control zones, retroreflective sheeting or bands shall be white if the devices separate traffic flows in the same direction and shall be yellow if the devices separate traffic flows in the opposite direction or are placed along the left-hand edge line of a one-way roadway or ramp.**

Guidance:

- 05 *Channelizing devices should be kept clean and bright to maximize target value.*

CHAPTER 3I. ISLANDS

Section 3I.01 General

Support:

- 01 This Chapter addresses the characteristics of islands (see definition in Section 1A.13) as traffic-control devices. Criteria for the design of islands are set forth in “A Policy on Geometric Design of Highways and Streets” (see Section 1A.11).

Option:

- 02 An island may be designated by curbs, pavement edges, pavement markings, channelizing devices, or other devices.

Section 3I.02 Approach-End Treatment

Guidance:

- 01 *The ends of islands first approached by traffic should be preceded by diverging longitudinal pavement markings on the roadway surface, to guide vehicles into desired paths of travel along the island edge.*

Support:

- 02 The neutral area between approach-end markings that can be readily crossed even at considerable speed sometimes contains slightly raised (usually less than 1 inch high) sections of coarse aggregate or other suitable materials to create rumble sections that provide increased visibility of the marked areas and that produce an audible warning to road users traveling across them. For additional discouragement to driving in the neutral area, bars or buttons projecting 1 to 3 inches above the pavement surface are sometimes placed in the neutral area. These bars or buttons are designed so that any wheel encroachment within the area will be obvious to the vehicle operator, but will result in only minimal effects on control of the vehicle. Such bars or buttons are sometimes preceded by rumble sections or their height is gradually increased as approached by traffic.

Guidance:

- 03 *When raised bars or buttons are used in these neutral areas, they should be marked with white or yellow retroreflective materials, as determined by the direction or directions of travel they separate.*

Standard:

- 04 **Channelizing devices, when used in advance of islands having raised curbs, shall not be placed in such a manner as to constitute an unexpected obstacle.**

Option:

- 05 Pavement markings may be used with raised bars to better designate the island area.

Section 3I.03 Island Marking Application

Standard:

- 01 **Markings, as related to islands, shall consist only of pavement and curb markings, channelizing devices, and delineators.**

Guidance:

- 02 *Pavement markings as described in Section 3B.10 for the approach to an obstruction may be omitted on the approach to a particular island based on engineering judgment.*

Section 3I.04 Island Marking Colors

Guidance:

- 01 *Islands outlined by curbs or pavement markings should be marked with retroreflective white or yellow material as determined by the direction or directions of travel they separate (see Section 3A.05).*
- 02 *The retroreflective area should be of sufficient length to denote the general alignment of the edge of the island along which vehicles travel, including the approach end, when viewed from the approach to the island.*

Option:

- 03 On long islands, curb retroreflection may be discontinued such that it does not extend for the entire length of the curb, especially if the island is illuminated or marked with delineators or edge lines.

Section 3I.05 Island Delineation**Standard:**

- 01 **Delineators installed on islands shall be the same colors as the related edge lines except that, when facing wrong-way traffic, they shall be red (see Section 3F.03).**
- 02 **Each roadway through an intersection shall be considered separately in positioning delineators to assure maximum effectiveness.**

Option:

- 03 Retroreflective or internally illuminated raised pavement markers of the appropriate color may be placed on the pavement in front of the curb and/or on the top of curbed approach ends of raised medians and curbs of islands, as a supplement to or as a substitute for retroreflective curb markings.

Section 3I.06 Pedestrian Islands and Medians**Support:**

- 01 Raised islands or medians of sufficient width that are placed in the center area of a street or highway can serve as a place of refuge for pedestrians who are attempting to cross at a midblock or intersection location. Center islands or medians allow pedestrians to find an adequate gap in one direction of traffic at a time, as the pedestrians are able to stop, if necessary, in the center island or median area and wait for an adequate gap in the other direction of traffic before crossing the second half of the street or highway. The minimum widths for accessible refuge islands and for design and placement of detectable warning surfaces are provided in the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)” (see Section 1A.11).

CHAPTER 3J. RUMBLE STRIP MARKINGS

Section 3J.01 Longitudinal Rumble Strip Markings

Support:

01 Longitudinal rumble strips consist of a series of rough-textured or slightly raised or depressed road surfaces intended to alert inattentive drivers through vibration and sound that their vehicle has left the travel lane. Shoulder rumble strips are typically installed along the shoulder near the travel lane. On divided highways, rumble strips are sometimes installed on the median side (left-hand side) shoulder as well as on the outside (right-hand side) shoulder. On two-way roadways, rumble strips are sometimes installed along the center line.

02 This Manual contains no provisions regarding the design and placement of longitudinal rumble strips. The provisions in this Manual address the use of markings in combination with a longitudinal rumble strip.

Option:

03 An edge line or center line may be located over a longitudinal rumble strip to create a rumble stripe.

Standard:

04 **The color of an edge line or center line associated with a longitudinal rumble stripe shall be in accordance with Section 3A.05.**

05 **An edge line shall not be used in addition to a rumble stripe that is located along a shoulder.**

Support:

06 Figure 3J-1 illustrates markings used with or near longitudinal rumble strips.

Section 3J.02 Transverse Rumble Strip Markings

Support:

01 Transverse rumble strips consist of intermittent narrow, transverse areas of rough-textured or slightly raised or depressed road surface that extend across the travel lanes to alert drivers to unusual vehicular traffic conditions. Through noise and vibration, they attract the attention of road users to features such as unexpected changes in alignment and conditions requiring a reduction in speed or a stop.

02 This Manual contains no provisions regarding the design and placement of transverse rumble strips that approximate the color of the pavement. The provisions in this Manual address the use of markings in combination with a transverse rumble strip.

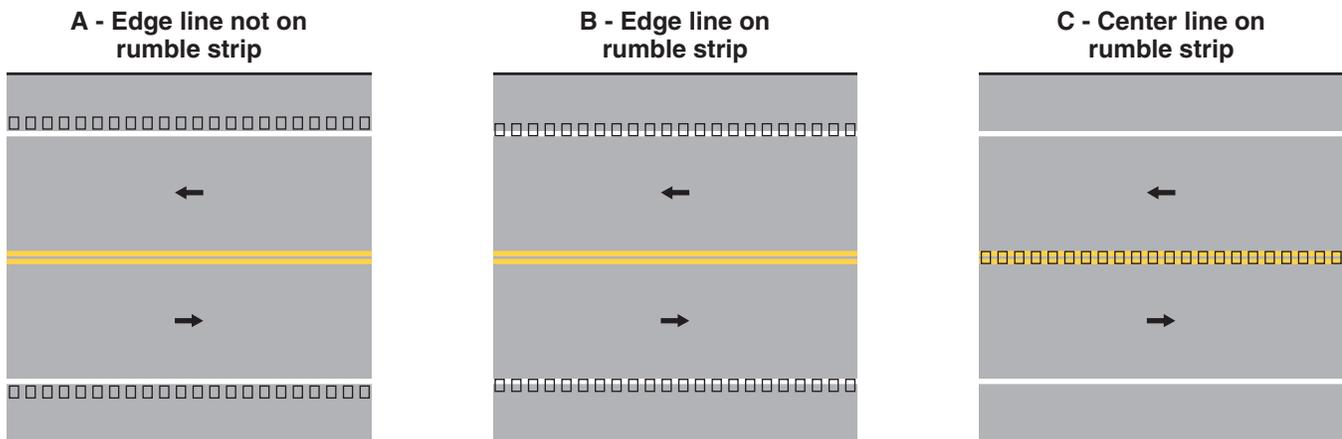
Standard:

03 **Except as otherwise provided in Section 6F.87 for TTC zones, if the color of a transverse rumble strip used within a travel lane is not the color of the pavement, the color of the transverse rumble strip shall be either black or white.**

Guidance:

04 *White transverse rumble strips used in a travel lane should not be placed in locations where they could be confused with other transverse markings such as stop lines or crosswalks.*

Figure 3J-1. Examples of Longitudinal Rumble Strip Markings



Legend

→ Direction of travel
 □□□ Rumble strip

Note: Edge line may be located alongside the rumble strip (Option A) or on the rumble strip (Option B). Center line markings may also be located on a center line rumble strip (Option C).

PART 4

HIGHWAY TRAFFIC SIGNALS

CHAPTER 4A. GENERAL

Section 4A.01 Types

Support:

- 01 The following types and uses of highway traffic signals are discussed in Part 4: traffic control signals; pedestrian signals; hybrid beacons; emergency-vehicle signals; traffic control signals for one-lane, two-way facilities; traffic control signals for freeway entrance ramps; traffic control signals for movable bridges; toll plaza traffic signals; flashing beacons; lane-use control signals; and in-roadway lights.

Section 4A.02 Definitions Relating to Highway Traffic Signals

Support:

- 01 Definitions and acronyms pertaining to Part 4 are provided in Sections 1A.13 and 1A.14.