CHAPTER 2F. TOLL ROAD SIGNS

Chapter 2F Subchapter and Section Organization

GENERAL

Section 2F.01 Scope

Support:

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 at which a toll is collected. 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 necessitates additional modifications to the typical signing.

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:

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 and Electronic Toll Collection (ETC) System Pictographs

Standard:

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:

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

Option:

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

The following paragraphs relocated from existing Section 2F.04 and revised

Standard:

The ETC system 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:

Except as provided in Paragraph 6 of this Section, a~~A~~n ETC pictograph that is in the shape of a horizontally oriented rectangle should have a minimum height of~~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 horizontally oriented rectangular ETC pictograph should be consistent with that of a route shield prescribed for the particular application and type of sign.

For ETC pictographs whose shape is square, circular, or otherwise similar in height and width, or is a vertically oriented rectangle, the same basic principles for conspicuity and placement should be followed. ETC pictographs whose shape is not in that of a horizontally oriented rectangle should be suitably sized to facilitate conspicuity as described in Paragraph ~~1~~4 and should be of a similar approximate area as the horizontally oriented rectangular pictographs designed in accordance with the height and width as provided in Paragraph ~~2~~5.

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

Standard:

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.05 and 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.

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 guide 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.

If an ETC pictograph is used on a separate plaque ~~with a guide sign~~in a route sign assembly (see Section 2F.05) 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.

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:

Figure 2F-1 shows examples of ETC account pictographs, their use with various background colors, and modifications involving underlay panels.

Section ~~2F.04~~2F.02contains provisions regarding the size of pictographs for ETC accounts.

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

~~**Section 2F.04 Size of ETC Pictographs**~~ **Relocated to Section 2F.02**

Section ~~2F.05~~ 2F.04 Regulatory Signs for Toll Plazas

Support:

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.

Guidance:

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

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:

Section ~~2F.13~~ 2F.12 contains information regarding the incorporation of regulatory messages into guide signs for toll plazas.

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

Guidance:

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.

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.

Guidance~~Option~~: **Changed from Option to Guidance and edited for clarity**

~~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.~~

Where speed limit signs are installed over a toll plaza 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, then ~~Down~~ down arrows or diagonally downward-pointing directional arrows ~~may~~should be used to supplement the speed limit signs if ~~an engineering study or engineering judgment indicates that~~ there is a need ~~the arrow is needed~~ to clarify the applicability of a sign to a specific lane or to improve compliance.

Standard:

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:

A STOP (R1-1) sign may be installed to require all 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.

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.

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:

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:

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:

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.

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

Option:

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.

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

Section ~~2F.12~~2F.05 Electronic Toll Collection (ETC) Account-Only ~~Auxiliary Signs~~Regulatory Sign and Plaque (~~M4-16 and M4-20~~R3-31, R3-32P)

Standard:

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~~ R3-31) sign ~~auxiliary sign~~ (see Figure ~~2F-4~~2F-3) shall be mounted directly below the route sign of the numbered or named toll facility. The ~~M4-20~~ R3-31 ~~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:

The NO CASH (~~M4-16~~ R3-32P) ~~auxiliary sign~~ plaque (see Figure ~~2F-4~~2F-3) with a black legend and border on a white background may be ~~used in a route~~ mounted directly below the ~~M4-20 auxiliary~~ R3-31 sign in a Directional or other sign assembly.

Figure 2F-3. ETC Account-Only Regulatory Sign and Plaque

WARNING SIGNS

Section 2F.06 Pay Toll and Take Ticket Advance Warning Signs (W9-6, W9-6e)

Standard:

The Pay Toll and Take Ticket Advance Warning (W9-6 and W9-6e) signs shall ~~be a horizontal rectangle with a black legend and border on a yellow background. The legend shall include~~ display the distance to the toll plaza and, except for toll-ticket facilities, the toll for passenger or 2-axle vehicles (see Figure ~~2F-3~~2F-4). 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:

The Pay Toll Advance Warning sign~~s~~ 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).

The Take Ticket 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 take a toll ticket (see Sections 2F.14 and 2F.15).

The Pay Toll and Take Ticket Advance Warning signs should be overhead-mounted. **Separated for distinction between recommendation for sign placement and recommendation for mounting type.**

Option:

If there is insufficient space for the W9-6 or W9-6e sign at the 1-mile or 1/2-mile advance location~~s~~, the Pay Toll or Take Ticket Advance Warning (W9-6bP, W9-6gP) ~~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.

An additional W9-6 or W9-6e sign may be installed approximately 2 miles in advance of a mainline toll plaza. This sign may be either overhead- or post-mounted.

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 or take a ticket is limited, the W9-6 or W9-6e sign may also be installed in advance of the ramp toll plaza.

Figure 2F-4. Toll Plaza Warning Signs and Plaques

Section 2F.07 Pay Toll and Take Ticket Advance Warning Plaques (W9-6bP, W9-6gP)

Option:

The Pay Toll or Take Ticket Advance Warning (W9-6bP, W9-6gP) plaque (see Figure ~~2F-3~~2F-4) 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 or W9-6e sign (see Section 2F.06) at those advance locations.

Standard:

The W9-6bP and W9-6gP plaques shall ~~be a horizontal rectangle with black legend and border on a yellow background. The legend shall include~~ display 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 W9-6bP 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:

The distance to the toll plaza may be omitted from the W9-6bP and W9-6gP plaques if the distance is displayed on the guide sign that the plaque accompanies.

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

Section 2F.08 Stop Ahead Pay Toll and Take Ticket Warning Signs (W9-6a, W9-6f)

Standard:

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~~ display the toll for passenger or 2-axle vehicles (see Figure ~~2F-3~~2F-4). 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:

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.~~

The Stop Ahead Pay Toll Advance Warning sign should be overhead-mounted. 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. **Separated for distinction between recommendation for sign placement and recommendation for mounting type.**

Where open-road tolling is used in addition to a toll plaza at a particular location, the W9-6a or W9-6f 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:

If there is insufficient space for the W9-6a or W9-6f sign at the recommended location, the Stop Ahead Pay Toll (W9-~~6ap~~6cP) or the Stop Ahead Take Ticket (W9-6hP) plaque (see Section 2F.09) may be installed at that location above the appropriate guide sign that relates to toll payment types.

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 or take a ticket is limited, the W9-6a or W9-6f sign may also be installed in advance of the ramp toll plaza.

Section 2F.09 Stop Ahead Pay Toll and Take Ticket Warning Plaques (W9-~~6aP~~ 6cP, W9-6hP)

Option:

The Stop Ahead Pay Toll (W9-~~6aP~~6cP) plaque (see Figure ~~2F-3~~2F-4) 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:

The W9-6cP 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,~~ display 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 W9-6~~a~~cP 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:

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

Section 2F.10 LAST EXIT BEFORE TOLL Warning Plaques (W16-16P, W16-16aP)

Guidance:

The LAST EXIT BEFORE TOLL (W16-16P or W16-16aP) plaque (see Figure ~~2F-3~~2F-4) 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.33 and 2E.36). For numbered exits, the Exit Number plaque (see Section 2E.XX) should be installed above the LAST EXIT BEFORE TOLL plaque.

~~**Standard:**~~

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

Section 2F.11 TOLL ~~Auxiliary Sign~~Warning Plaque (~~M4-15~~W16-17P)

Standard:

The TOLL (~~M4-15~~W16-17P) ~~auxiliary sign~~warning plaque (see Figure ~~2F-4~~2F-3) 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 direction~~s~~ from ~~a non-toll highway~~ to ~~the~~ a toll highway or to a segment of a highway on which the payment of a toll is required.

Section ~~2F.13~~ 2F.12 Toll Facility and Toll Plaza Guide Signs – General

Support:

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.

Chapter 2G contains information regarding signs for preferential and managed lanes that are applicable to toll roads.

Chapter 3E contains information regarding pavement markings for certain toll plaza applications.

Standard:

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. Except where the State Toll Route sign (see Paragraph 8) is used, ~~T~~the TOLL (~~M4-15~~W16-20P) ~~auxiliary sign~~warning plaque (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~~.~~.

Except where the State Toll Route sign (see Paragraph 8) is used, ~~A~~ a rectangular panel with the black legend TOLL on a yellow background shall be incorporated into the guide signs leading road users to a tolled highway (see Figure 2F-5)

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~~ 12 through 2F.16.

Option:

A State Toll Route sign (see Paragraph 8) may be used in lieu of the State Route (M1-5) sign in combination with the TOLL (W16-20P) warning plaque or the TOLL panel (see Paragraphs 10 and 11).

Standard:

A State Toll Route sign shall incorporate into its design the word TOLL using the same letter height, legend, background colors, and overall plaque dimensions specified for the W16-20P plaque.

The Interstate, Off-Interstate, and U.S. Route signs shall not be modified for tolled facilities.

Option:

Where conditions do not ~~permit~~ accommodate 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:

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

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

Guidance:

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

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:

Signs for ~~attended A~~attended lanes at toll plazas shall ~~include word messages such as FULL SERVICE, CASH, CHANGE, or RECEIPTS~~ incorporate the Toll Taker (M4-17) symbol panel (see Figures 2F-~~8~~ 6 through ~~2F-11~~ 2F-9).

Option:

Signs for ~~A~~attended lanes at toll plazas may ~~incorporate the Toll Taker (M4-17) symbol~~also display word legends such as FULL SERVICE, CASH, CHANGE, or RECEIPTS (see Figures 2F-~~8~~ 6 ~~and~~through 2F-~~11~~9), ~~in a size that makes the symbol the predominant feature of the sign,~~ to supplement the required ~~word message~~ symbol panel when lanes have different services available through them.

Figure 2F-6. Examples of Conventional Toll Plaza Advance Signs

Figure 2F-7. Examples of Toll Plaza Canopy Signs

Figure 2F-8. Examples of Mainline Toll Plaza Approach and Canopy Signing

Figure 2F-9. Examples of guide Signs for a Mainline Toll Plaza on a Diverging Alignment from Open-Road ETC Lanes

Standard:

Signs for Exact Change lanes at toll plazas shall incorporate the Exact Change (M4-18) symbol panel ~~an appropriate word message, such as EXACT CHANGE~~ and, except for ticketed systems, display the amount of the toll for passenger vehicles (see Figures 2F-~~8~~ 6 through 2F-~~11~~9).

Option:

Signs for Exact Change lanes at toll plazas may include ~~include the Exact Change (M4-18) symbol~~ an appropriate word legend, such as EXACT CHANGE (see Figures 2F-~~8~~ 6 and 2F-9), ~~in a size that makes the symbol the predominant feature of the sign,~~ to supplement the required ~~word message~~ symbol panel.

Standard:

~~If~~ When used, the M4-17 and M4-18 symbol~~s~~ panels shall be used only as panels within guide signs ~~that accompany the required word messages~~. The M4-17 and M4-18 symbols or panels shall not be used as an independent sign or within a sign assembly.

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~~6, 2F-~~9~~7, ~~and~~ 2F-~~11~~9, 2F-10 and 2F-11). The use, size, and placement of the ETC pictograph shall comply with the provisions of Sections 2F.02 and 2F.03 ~~and 2F.04~~.

An Overhead-Arrow-Per-Lane Guide sign (see Figure 2F-10) shall be used in advance of a location where the mainline lanes split to separate traffic entering Open-Road ETC lanes from lanes entering a toll plaza where other methods of payment are accepted and an option lane is provided at the split (see Figure 2F-11). An Overhead-Arrow-Per-Lane sign shall not be used if there is no option lane at the split.

Figure 2F-10. Overhead Arrow Per Lane Guide Sign for Split with Option Lane between Open-Road ETC Lanes Only and Toll Plaza Lanes.

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

Option:

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~~7).

Section 2F.13 Electronic Toll Collection (ETC) Signs - General New Section with paragraphs from existing Section 2F.13

Support:

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:

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)~~ of Section 2F.12.

Support:

Figure 2F-12 shows examples of guide signs for the entrance to a toll highway on which tolls are collected electronically only and registration in a toll-account program is not required.

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, 2F-10, 2F-11, ~~and~~ 2F-~~6~~12). The use, size, and placement of the ETC pictograph and the use and color of the background and underlay panel shall comply with the provisions of Sections 2F.02 and 2F.03~~ and 2F.04~~.

Support:

Sections 2F.05, 2F.11, ~~2F.12,~~ and 2F.17 contain additional provisions regarding signs for toll highways that only accept ETC payments.

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

~~Option:~~ **Relocated to new Section 2F.18**

~~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:~~

Figure 2F-~~7~~13 shows an example of guide signs for alternative toll and non-toll ramp connections to a non-toll highway (see Section 2F.19).

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

Option:

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.

Figure 2F-12. Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only

Figure 2F-13. Examples of Guide Signs for Alternative Toll and Non-Toll Ramp Connections to a Non-Toll Highway

Section 2F.14 Advance Signs for Conventional Toll Plazas

Guidance:

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.

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.

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:

Figure 2F-~~10~~ 8 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:

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~~9). 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:

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~~ 6 and 2F-~~11~~9) with a down arrow over the approximate 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~~2F.12, 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.*

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~~ 6 and 2F-~~11~~9) with a down arrow over the approximate center of each Open-Road ETC lane;*
B. *Guide signs conforming to the provisions of Section 2F.12 and 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.*

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:

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:

Figure 2F-~~11~~ 9 shows an example of advance signs for toll plazas on a diverging alignment from Open-Road ETC Account-Only Lanes.

Section 4K.02 contains information regarding the use of lane-use control signals for Open-Road ETC lanes for temporary lane closure purposes.

Section 2F.16 Toll Plaza Canopy Signs

Standard:

A sign complying with the provisions of Section ~~2F.13~~ 2F.12 shall be provided above the approximate 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.

The background color of a canopy sign for an ETC Account-Only toll plaza lane shall be purple (see Figure 2F-~~9~~7).

Option:

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.

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:

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~~7).

For multi-lane toll plazas, lane-use control signals (see Section 4K.02) shall be provided above the approximate 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:

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

Figure 2F-~~9~~ 7 shows examples of toll plaza canopy signs.

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

Support:

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

Standard:

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.

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).

Option:

A separate information sign displaying the route number, the TOLL warning panel (see Sections 2F.12 and 2F.13), and the legend NO CASH may be located within the sequence of the Advance guide signs on the approach to the entrance to an ETC Account-Only facility (see Figure 2F-12).

Exit Gore signs for entrance ramps to such ETC Account-Only facilities may 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-12 and Figure 2F-13)

Support:

Section ~~2F.12~~2F.05contains information regarding ETC Account-Only auxiliary ~~signs~~ plaques for use with route signs in route sign assemblies.

Section 2F.18 Guide Signs for Entrances to ETC-Only Facilities

Support:

Some toll highways, bridges, and tunnels collect tolls electronically using license plate character recognition in which the registered vehicle owner is then billed by postal mail. Registration in an ETC account program is not required. Registered ETC account users might have the option to be billed through their accounts if the facility also accepts such payments.

Standard:

Where vehicles are not required to have a registered ETC account to use an ETC-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.

Advance and Exit Direction guide signs for the entrances to such ETC-Only facilities that do not require the registration in an ETC toll account program shall not display a pictograph of an accepted ETC payment system or use purple as a background color on any portion of the signs.

If the ETC-Only facility collects tolls by post-travel billing of registered vehicle owners without registration in an ETC toll account program, a separate informational guide sign, if used, shall display one of the following legends (see Figure 2F-12):

A. TOLL BILLED BY MAIL ONLY, if there is no alternative payment method; or

B. TOLL BILLED BY MAIL OR [ETC Account Pictograph], if the facility also accepts payments from registered users of an ETC account program.

Option:

A plaque with the legend NO CASH may be added below the signs described in Paragraph 4 of this section.

Guidance:

The signs described in Paragraph 4 of this Section should be located within the sequence of Advance Guide signs for the entrance to the facility and/or at a location along the facility itself (see Figure 2F-12).

Option:

If the ETC-Only facility also accepts payments from other toll account programs, but does not require registration in the primary ETC account program associated with the facility in order to use the facility, then the pictographs of the other accepted ETC account programs may be displayed on the separate information sign displaying the legend TOLL BILLED BY MAIL or ETC System. (See Figure 2F-12).

If, in addition to a toll, a nominal surcharge (not a fine, penalty or violation) is assessed road users not registered in the toll account program~~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~~on the approach to the entrance to such a facility (see Figure 2F-~~6~~12). **Paragraph 14 from existing Section 2F.13**

Section 2F.19 Guide Signs for ETC-Only Entrance Ramps to Non-Toll Highways

Support:

In some cases, access to or from a non-toll route might be provided by a ramp on which a toll is charged in order to manage congestion, limit access, or for other reasons. The toll ramp might be provided as an alternative to or in lieu of a ramp providing similar access without charging a toll. Figures 2F-5 and 2F-13 show examples of guide signs for a ramp on which a toll is charged to enter a non-toll route.

Standard:

Guide signs for ETC-Only Entrance Ramps to non-toll highways shall comply with the provisions of 2F.18.

Option:

A NO-TOLL panel with a black legend and a yellow background may be included on the top section of the Exit Gore sign for an exit that provides access to the facility without charging a toll.

Section ~~2F.18~~ 2F.20 ETC Account Program Information Signs

Standard:

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 account program of a toll facility or managed lane, obtaining an ETC transponder, and/or obtaining ETC account program information shall only be installed in rest areas, parking areas,

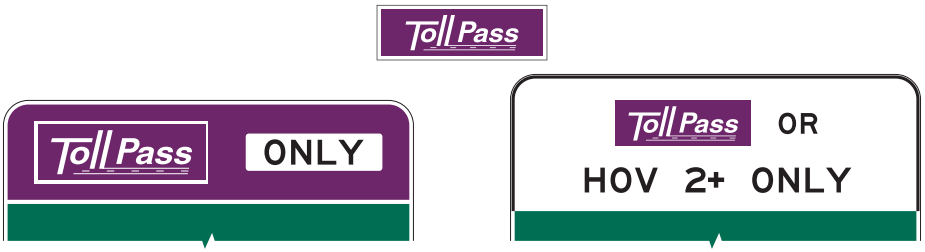
or similar roadside facilities where the signs are viewed only by pedestrians or occupants of parked vehicles.

Option:

ETC account 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.

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



1. Pictograph on a purple or other non-contrasting background

2. Pictograph on a white or other contrasting background

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

1. Pictograph on a purple background

2. Pictograph with a purple underlay on a non-contrasting background

3. Pictograph with a purple underlay panel on a white or other contrasting background

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

R3-28

R3-29P

R3-30P

Figure 2F-3. ETC Account-Only Auxiliary Signs for Use in Route Sign Assemblies

R3-32P

R3-31

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

W16-17P

M3-2P

M1-4

R3-32P

M5-1P

Example Route Sign Assembly

Figure 2F-4. Toll Plaza Warning Signs and Plaques

W9-6

W9-6a

W9-6bP

W9-6cP

W9-6dP

W9-6e

W9-6f

W9-6gP

W9-6hP

W16-16P

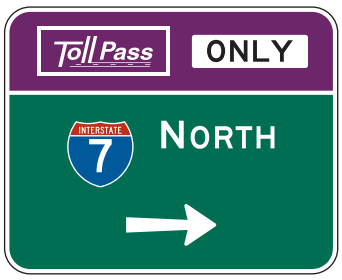
W16-16aP

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

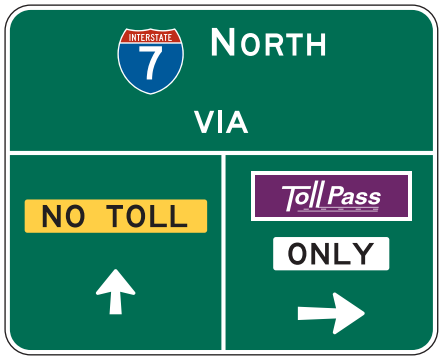
A - ENTRANCE TO A TOLL HIGHWAY ON WHICH REGISTRATION IN A TOLL ACCOUNT PROGRAM IS NOT REQUIRED

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



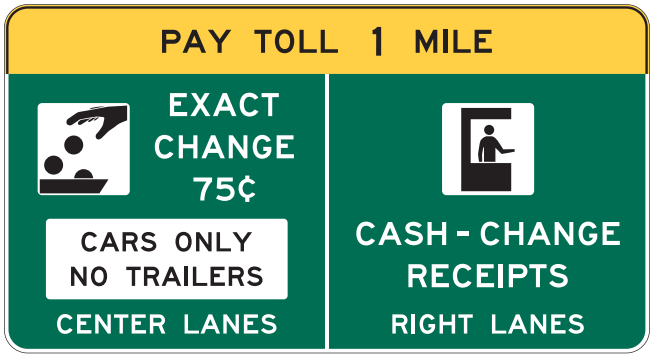
(the toll entrance is the only connection provided in the vicinity)



(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 Conventional Toll Plaza Advance Signs

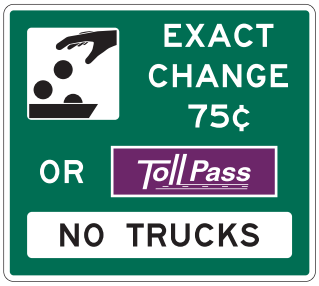


Notes:

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-7. 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.

Figure 2F-8. Examples of Mainline Toll Plaza Approach and Canopy Signing

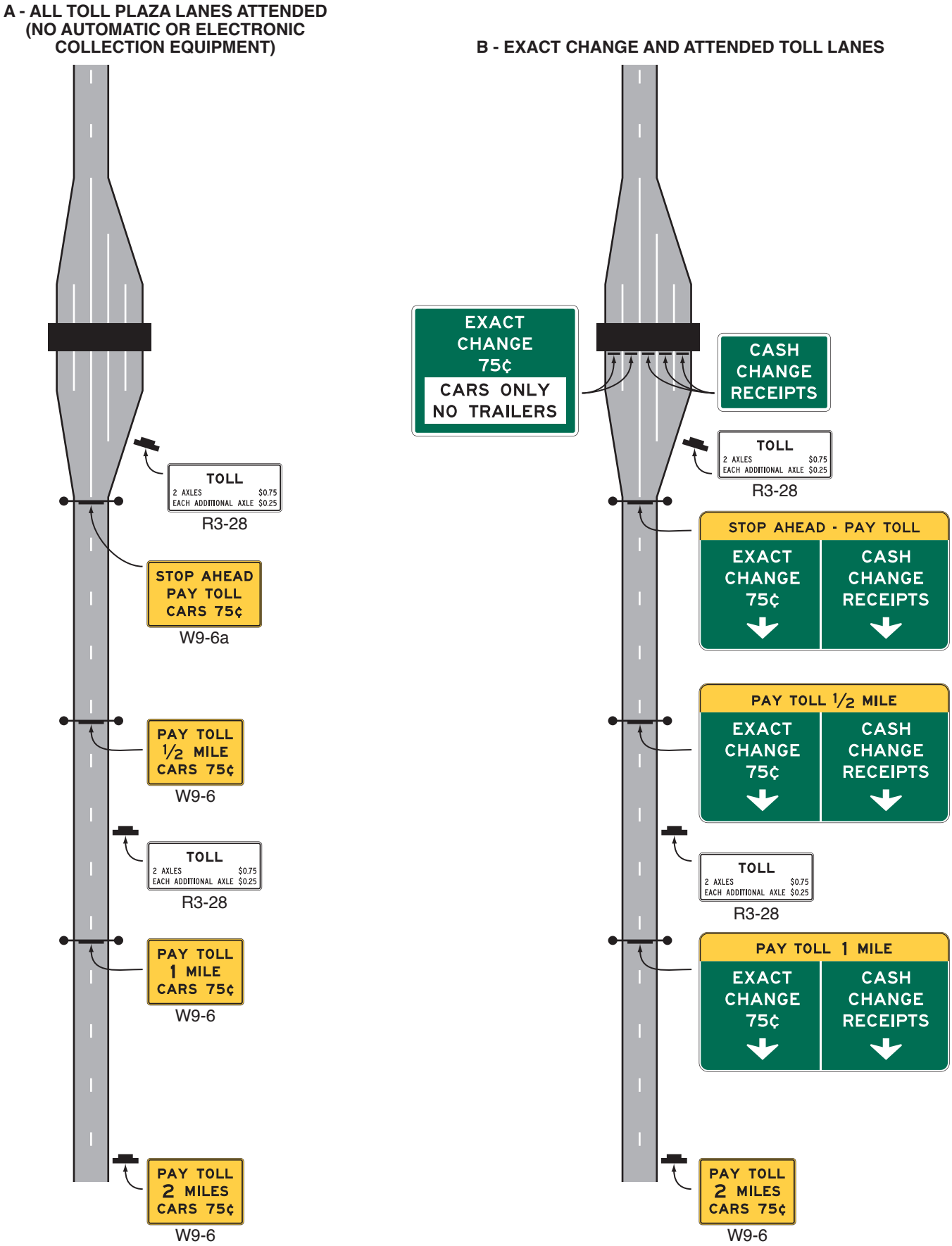
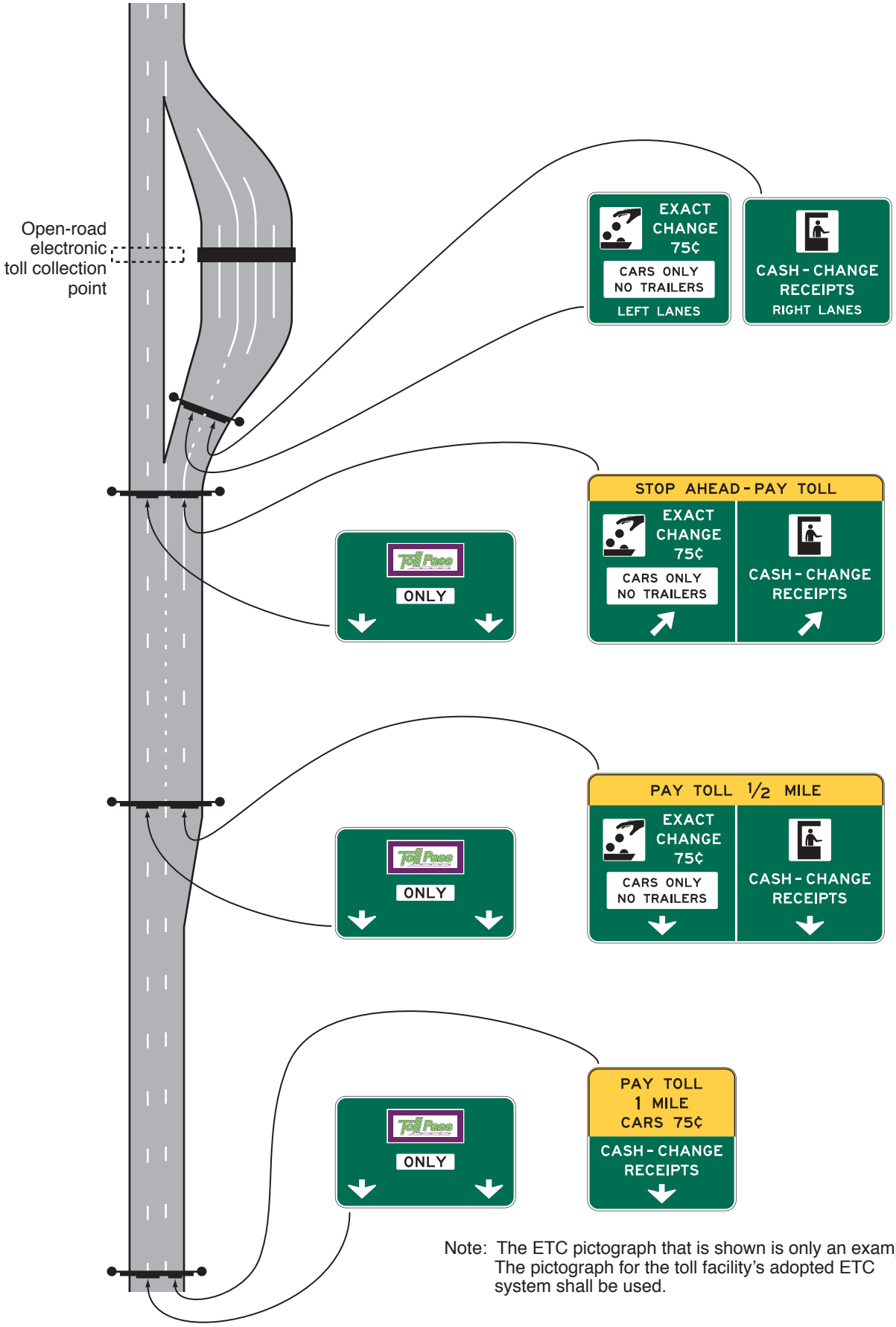
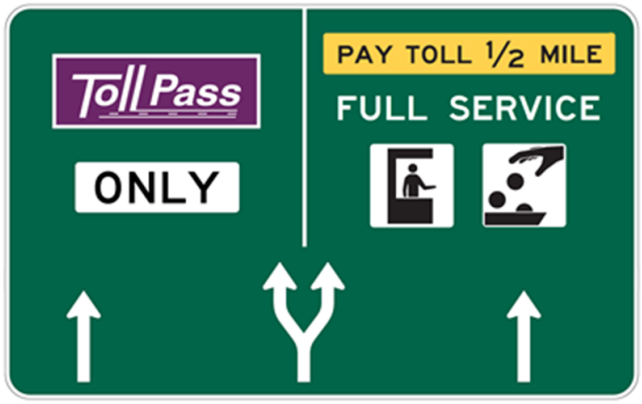


Figure 2F-9. Examples of Guide Signs for a Mainline Toll Plaza on a Diverging Alignment from Open-Road ETC Lanes

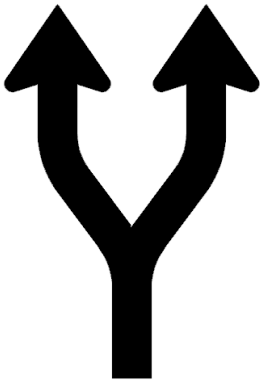


Note: The ETC pictograph that is shown is only an example. The pictograph for the toll facility's adopted ETC system shall be used.

Figure 2F-10. Example of an Overhead Arrow-per-Lane Guide Sign and Arrow for a Through Option Lane Split

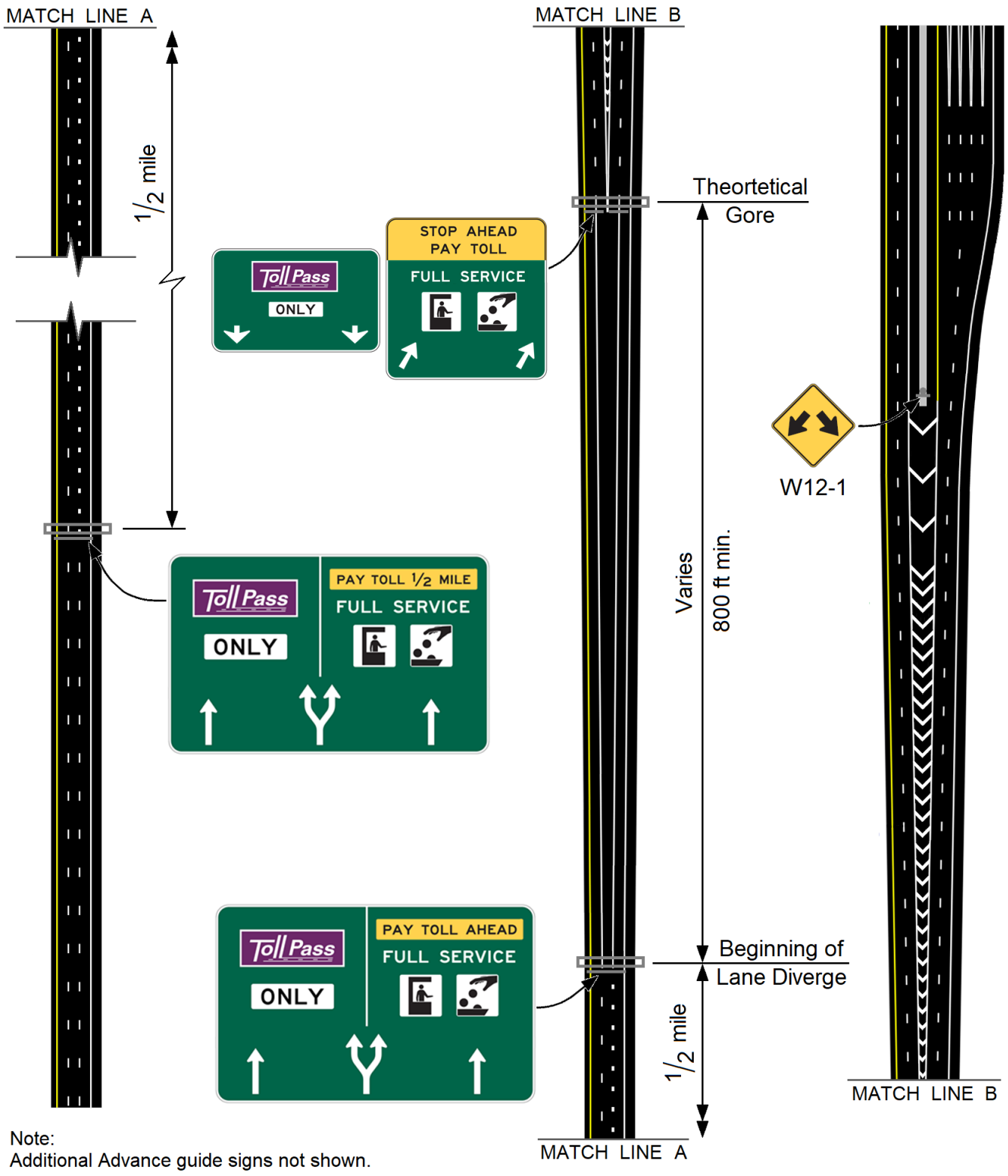


Example of an Overhead Arrow-per-Lane Guide Sign for a Through Option Lane Split



Arrow for Through Option Lane Split (see Standard Highway Signs publication for detail)

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



Note:
Additional Advance guide signs not shown.

Figure 2F-12. Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only (Sheet 1 of 3)

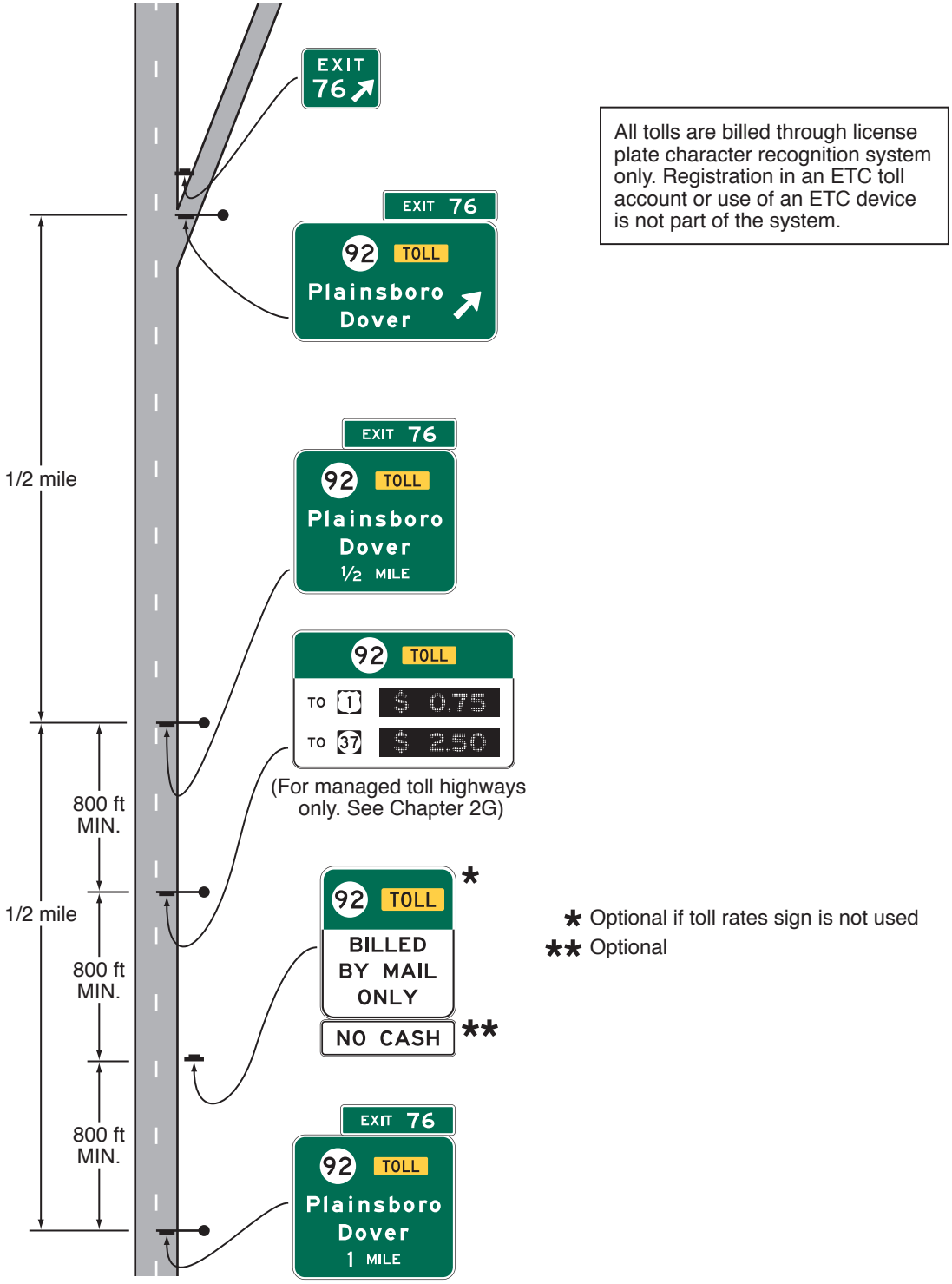


Figure 2F-12. Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only (Sheet 2 of 3)

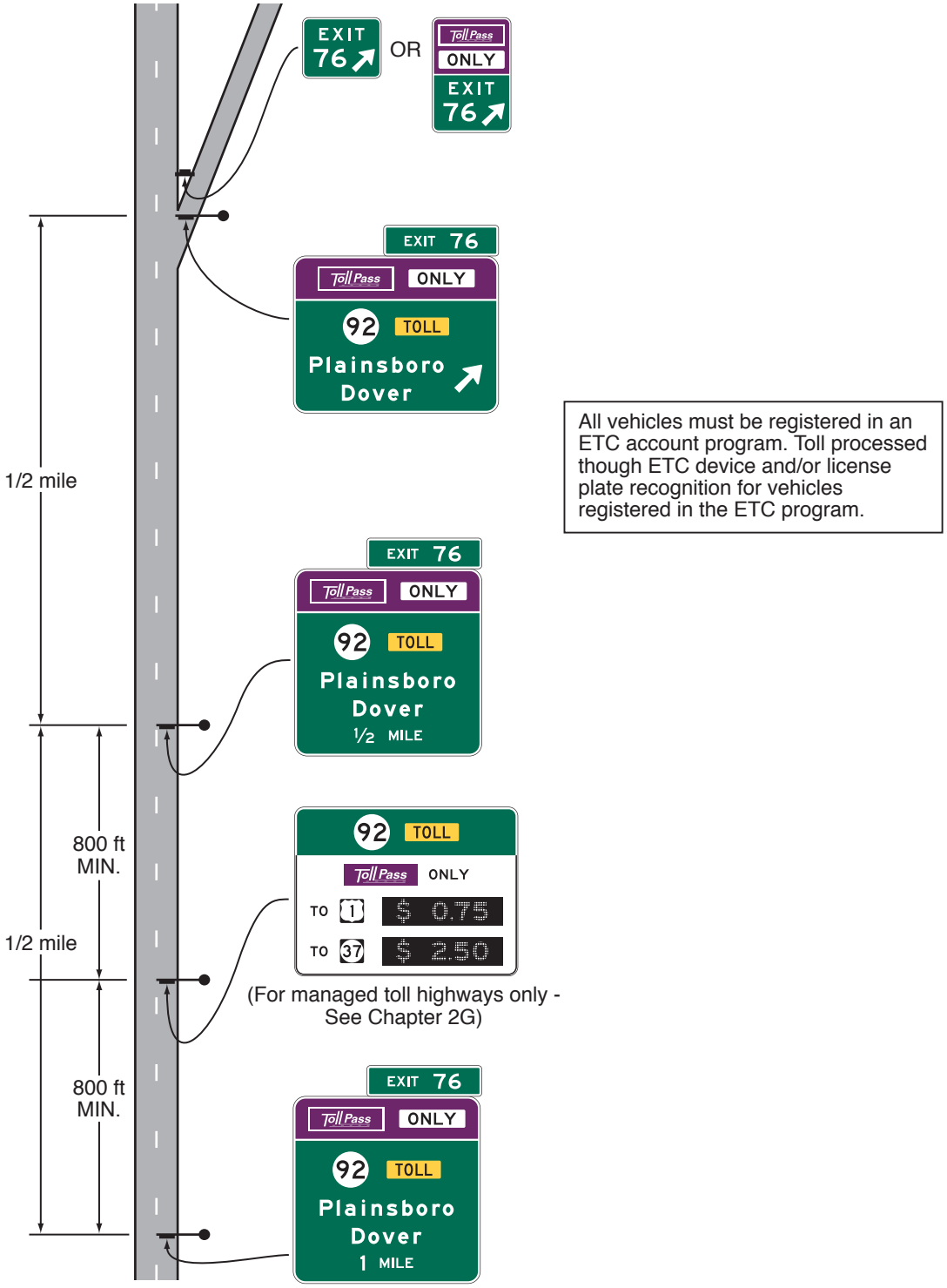
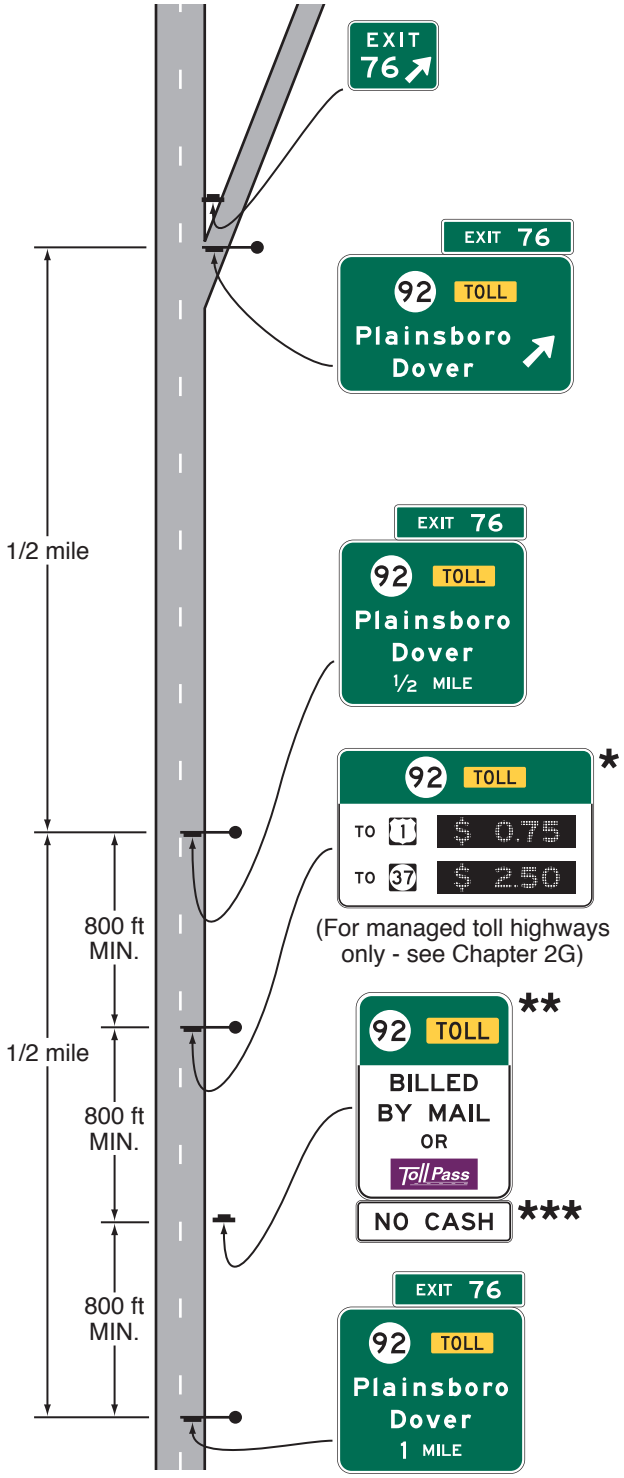


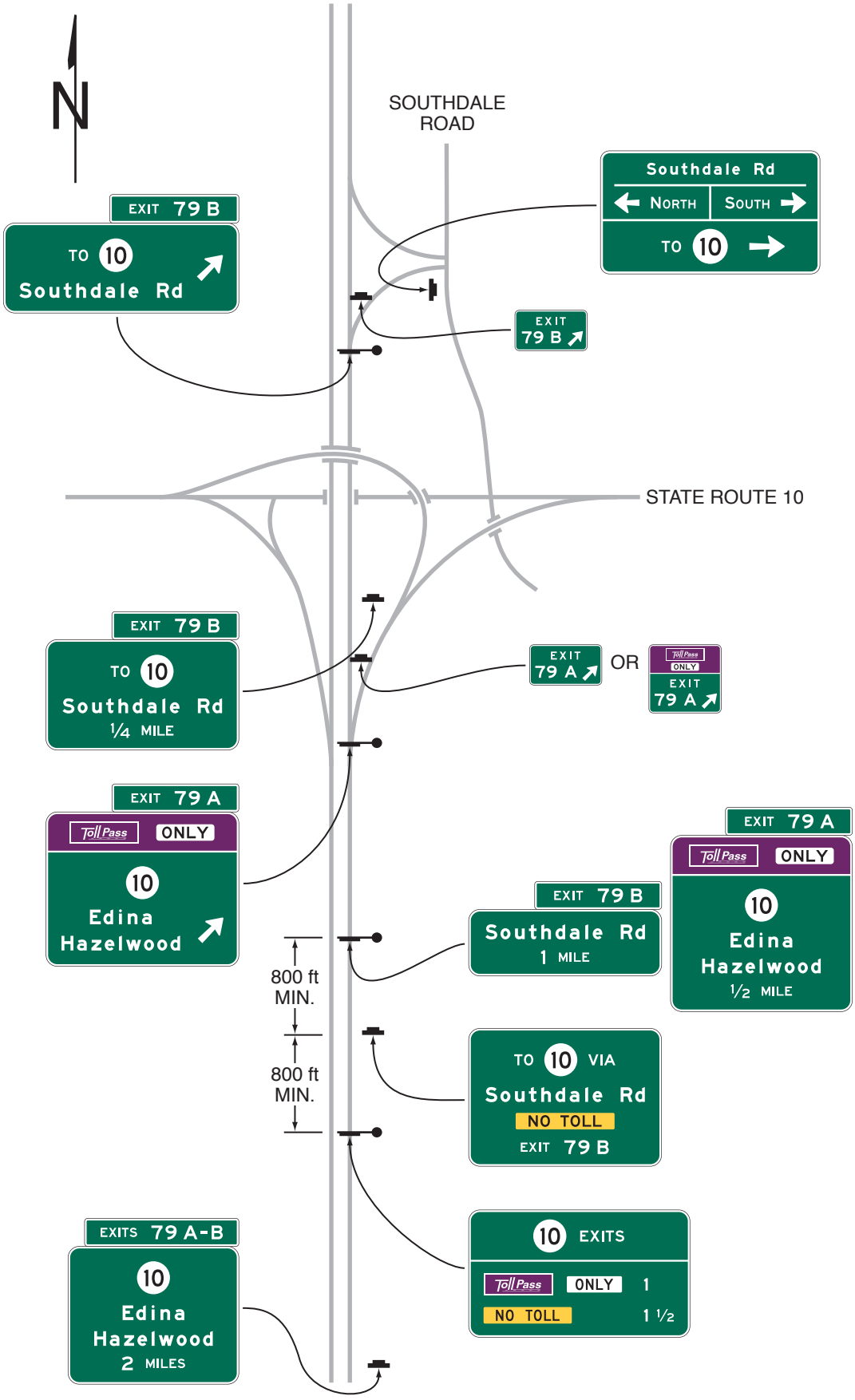
Figure 2F-12. Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only (Sheet 3 of 3)



Registration in an ETC account is not required. Tolls are billed through license plate character recognition system or ETC account device. Vehicles registered in a toll account program may receive a discounted toll rate.

* Show only non-discounted rates
** Optional if toll rates sign is not used
*** Optional

Figure 2F-13. Examples of Guide Signs for Alternative Toll and Non-Toll Ramp Connections to a Non-Toll Highway



CHAPTER 2G. PREFERENTIAL AND MANAGED LANE SIGNS

Chapter 2G Subchapter and Section Organization

GENERAL

Section 2G.01 Scope

Support:

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.

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.

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.

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.

Managed lanes typically restrict access with the adjacent general-purpose lanes to designated locations only.

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).

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.

Sections 2G.~~16~~ 17 through 2G.~~18~~ 19 contain additional information regarding signs for managed lanes that use tolling or pricing as a management strategy.

Section 9B.04 contains information regarding Preferential Lane signs for bike lanes.

Standard:

Unless otherwise provided, the provisions of this Chapter shall not apply to bike lanes.

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

Standard:

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:

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

Option:

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

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

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

Standard:

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

Support:

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).

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

Standard:

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:

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:

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.

Support:

Figure 2G-1 illustrates examples of changeable messages incorporated into static Preferential Lane regulatory signs displaying open and closed status using lane-use control signal indications (see Chapter 4M). The LED sign legends are normally the variable text such as the open and closed lane legends.

Standard:

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:

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.

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:

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:

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

Support:

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:

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:

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~~ 17 feet above any portion of the pavement and shoulders.

Standard:

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 if any portion of the sign extends over the roadway.

Guidance:

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:

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

Standard:

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:~~

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

~~**Standard:**~~

~~**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-hand side of the sign.~~ The diamond symbol shall not be used on the bus, taxi, or bicycle Preferential Lane signs.**

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:

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:~~ **Paragraphs Relocated to New Section 2G.16**

~~**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.**~~

~~**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.**~~

~~**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:~~

~~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.~~

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.

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

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

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

Standard:

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:

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:

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~~ 40 CFR §88.311-93 and ~~40 CFR 88.312-93(c)~~40 CFR §88.312-93(c).

~~*Guidance:*~~

~~*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)*~~
~~*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:~~

Section 2G.~~17~~ 18 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:

For barrier- or buffer-separated or contiguous preferential lanes where access between the preferential and general-purpose lanes is restricted to designated locations on freeways and expressways, 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 or intermediate entry point to HOV lanes.

For buffer-separated or contiguous HOV lanes where access is restricted to designated locations on freeways and expressways, the sequence of a post-mounted Periods of Operation (R3-11a) sign (see Section 2G.05) 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~~ of designated gaps where vehicles are allowed to legally access the HOV lane, and within designated enforcement areas as defined by the operating agency. Relocated from later in Section, portions of provision changed to Option that follows

Option:

For buffer-separated or contiguous HOV lanes where access is restricted to designated locations on freeways and expressways, the sequence of a post-mounted Periods of Operation (R3-11a) sign (see Section 2G.05) 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.

For barrier-separated HOV lanes on freeways and expressways, the sequence of a post-mounted Periods of Operation (R3-11a) sign (see Section 2G.05) 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:

~~**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.~~ Relocated to earlier in Section, portions of provision changed to Option**

For buffer-separated or contiguous HOV lanes where continuous access with the adjacent general-purpose lanes is provided on freeways and expressways, the sequence of a post-mounted Periods of Operation (R3-11a) sign (see Section 2G.05) 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:

On freeways and expressways, ~~T~~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.

On conventional roads, the distance between Preferential Lane regulatory signs within each sequence should be determined by engineering judgment based on speed, block length, distances from adjacent intersections, and other site-specific considerations.

Standard:

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:*~~

~~*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.*~~ **Incorporated into following Support statement**

Support:

The standardized sizes of post-mounted Preferential Lane Operation (R3-11 series) signs are consistent to accommodate any future addition or removal of a single line of legend for each sign. Each size accommodates two lines of legend for the times of day and days of week that the regulation is in effect. Consistent sign sizes are beneficial for agencies when ordering sign materials, as well as when making ~~text~~ legend 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.~~

Guidance:

Where the regulation is in effect during more than one time period of the day, such as during the morning and afternoon peak periods, the height of the R3-11 series signs should be suitably increased to accommodate the additional line(s) of legend.

Standard:

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

The legend format of the post-mounted Preferential Lane Operation ~~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"**

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

A. **Top 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**
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.)**

For preferential lane~~s~~ restrictions that are in effect on a full-time basis, ~~either~~ the full- Preferential Lane Operation ~~time Periods of Operation~~ (~~R3-11b and~~ R3-11b, R3-11c, R3-11e, R3-11g, R3-14b, R3-14e or R3-14g) signs shall be ~~used,~~modified to display no legend relative to the period of operation ~~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~~ except as provided in Paragraph 7. Deleted portion converted to Option that follows and text revised

Option:

In lieu of using the full-time Preferential Lane Operation ~~Periods of Operation~~ signs, the legend 24 HOURS may be substituted for the times and days of the week on the part-time Preferential Lane Operation~~Periods of Operation~~ (R3-11, R3-11a, R3-11d, R3-11f, R3-14, ~~R3-14a,~~ R3-14d, and R3-14f) signs for preferential lane restrictions that are in effect on a full-time basis.

Support:

The 24 HOURS legend displayed on the R3-11c sign reinforces the full-time operation where several facilities in the same area have different hours of operation—some part-time, others full-time, or where the same lane changes from part-time to full-time operation somewhere along its length.

Standard:

The full-time Preferential Lane Operation ~~Periods of Operation~~ (R3-11b, R3-11c, R3-11e, R3-11g, R3-14b, R3-14e, R3-14g) signs shall not be used where the preferential lane restriction is in effect only on a part-time basis.

Option:

Where additional movements are ~~permitted~~ allowed from a preferential lane by vehicles not meeting the preferential lane regulation on an approach to an intersection, the format and words used in the legend in the middle lines on the post-mounted Preferential Lane Operation ~~Periods of Operation~~ (R3-11 series) signs and on the top line of the overhead Preferential Lane Operation ~~Periods of Operation~~ (R3-14 series) signs may be modified to accommodate the ~~permitted~~ allowable movements (such as "HOV 2+ AND RIGHT TURNS ONLY").

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

Standard:

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

For all barrier- or buffer-separated or contiguous preferential lanes where access is restricted to designated locations, an overhead Preferential Lane Operation ~~Periods of Operation~~ (R3-14 series) sign shall be used at the beginning or initial entry point on freeways, expressways, and at locations on conventional roadways where the preferential lane is not the outermost (far right or far left) lane of the roadway, and at any intermediate entry points or gaps in the barrier or buffer where vehicles are allowed to legally ~~access~~ enter the access-restricted preferential lanes. For all barrier-separated and buffer-separated preferential lanes, post-mounted Preferential Lane Operation ~~Periods of Operation~~ (R3-11 series) signs shall be used only as a supplement to the overhead signs on freeways, expressways, and at locations on conventional roadways where the preferential lane is not the outermost lane of the roadway at the beginning or initial entry point, or at any intermediate entry points or gaps in the barrier or buffer.

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 Preferential Lane Operation ~~Periods of Operation~~ (R3-14 series) sign shall be used at the beginning or initial entry point of the preferential lane on freeways and expressways.

Option:

On conventional roads where preferential lane operations exist , R3-11 series post mounted signs may be used in lieu of or in addition to overhead R3-14 series signs, except where overhead signs are required as provided in Paragraph 14.

~~*Guidance:*~~

~~*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:~~

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

~~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:

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

Option:

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

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~~15).

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

Guidance:

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~~13).

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~~14).

Option:

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

Guidance:

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.

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:

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:

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 on freeways and expressways.

Except as provided in Paragraph ~~6~~7 of this Section, a post-mounted Preferential Lane Ends (R3-12a or R3-12g) sign shall be installed at the point where a preferential lane and restriction end and traffic must merge into the general-purpose lanes.

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 on freeways and expressways.

Except as provided in Paragraph ~~7~~8 of this Section, 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.

Guidance:

On conventional roads, the distance at which Preferential Lane Ends signs are installed in advance of the termination of a preferential lane and/or restriction should be determined by engineering judgment.

Option:

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

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.

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:

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 vertically oriented 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:

When a vertically oriented 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).

Guidance:

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:

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~~ 17 feet above any portion of the pavement and shoulders.

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

Standard:

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:

In situations where there is a need to warn drivers in an HOV lane of a specific condition, ~~a~~ the 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~~applicable to the 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.

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:

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:

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:

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:

~~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.~~

Additional guidance and standards related to the designation, operational considerations, signs, pavement markings, and other considerations for preferential lanes ~~is~~ are provided in Sections 2G.03 through 2G.07, and 2G.09, and Chapter ~~3D~~3E.

Guidance:

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.

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.

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:

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:

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 allowed 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:

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.

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.

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.

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.

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~~ 13 and 2G-~~13~~14). The design and placement of the regulatory signs shall comply with the provisions of Sections 2G.03 through 2G.07.

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:

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 vertically oriented rectangular shape.

Standard:

When vertically oriented 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:

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:

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~~ 17 feet above any portion of the pavement and shoulders.

Standard:

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:

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.

Changeable message signs may supplement, substitute for, or be incorporated into static guide signs (see Figure 2G-6) 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:

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~~s~~ to the type of roadway facility and design speed.

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:

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.

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

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

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

Standard:

When the entry point is on the left-hand side of the general-purpose lanes, a LEFT (E1-5aP) plaque (see Figure 2E-~~22~~9) 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~~Signing for Initial Entry Points to Preferential Lanes

Standard:

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 on freeways and expressways. 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).

Where a general-purpose lane becomes a preferential lane that does not provide continuous access with the adjacent general purpose lanes, an Advance Guide sign shall also be provided at approximately 1 mile in advance of the initial entry point. The Advance Guide and Entrance Direction signs in this sequence shall include a panel at the bottom of the sign with a black legend and border on a yellow background displaying a down arrow and the word ONLY as illustrated in Figure 2G-8.

Guidance:

Except as required in Paragraph 2, 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 on freeways and expressways.

Option:

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:

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

Guidance:

Preferential Lane Exit Destination guide signs, identifying final destination and downstream exit locations accessible from the preferential lane (see Figures ~~2G-8~~2G-9, ~~2G-13~~2G-14, ~~2G-14~~2G-15, and ~~2G-16~~2G-17), 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:

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-hand edge of this upper section (see Figure ~~2G-8~~2G-9).

Support:

Figure 2G-8 shows and example of signing for a general-purpose lane that becomes a preferential lane that does not provide continuous access with the adjacent general purpose lanes.

Figure ~~2G-8~~2G-9 shows an example of signs for the initial entry point to a preferential lane.

Figure 2G-8. Example of Advance Guide and Entrance Direction Signs for a General Purpose Lane that becomes a Preferential Lane

Figure 2G-9. Example Signing for an Entrance to Access-Restricted HOV Lanes

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

Standard:

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:

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~~2G-10), at least one Advance Guide sign should be provided in addition to the Preferential Lane Entrance Direction sign.

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~~2G-11).

Figure 2G-10. Example Signing for Intermediate Entry Point to a Barrier- or Buffer-Separated HOV Lane

Figure 2G-11. Example of Signing for the Intermediate Entry to, Egress from, and End of Access-Restricted HOV Lanes

Standard:

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

Option:

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:

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

Guidance:

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:

Section 2G.11 contains information on the design and placement of Preferential Lane Exit Destination guide signs.

Figures ~~2G-9~~2G-10 and ~~2G-10~~2G-11 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~~Signing for Egress from Preferential Lanes to General-Purpose Lanes

Standard:

Except as provided in Paragraphs 4 and 5, ~~For~~ 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~~2G-12) 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~~2G-10).

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:

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~~2G-10 and ~~2G-12~~2G-13 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:

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.

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~~2G-13).

Figure 2G-12. Examples of Barrier-Mounted Guide Signs for an Intermediate Egress from Preferential Lanes

Figure 2G-13. Examples of Signs for an Intermediate Egress from a Barrier- or Buffer-Separated HOV Lane

Standard:

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.

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.

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

Standard:

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~~2G-14).

Support:

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.

Figure 2G-14. Example of Signing for a Direct Entrance Ramp to an HOV Lane from a Park-and-Ride Facility and a Local Street

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

Standard:

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~~2G-15) specifically applicable to the preferential lanes shall be used for exits to direct access ramps, such as HOV lane ramps (see Figure ~~2G-15~~2G-16) or ramps to park - ride facilities.

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~~2G-16 and ~~2G-16~~2G-17).

Guidance:

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

Standard:

Post-mounted guide signs in a vertically oriented 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.

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~~2G-17).

Guidance:

The use of guide signs for preferential lanes at freeway interchanges should comply with the provisions for guide signs established in Chapter 2E of this Manual.

Support:

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-15. Exit Gore Sign for a Direct Exit from a Preferential Lane

Figure 2G-16. Examples of Guide Signs for Direct HOV Lane Entrance and Exit Ramps

Figure 2G-17. Examples of Guide Signs for a Direct Access Ramp between HOV Lanes on Separate Freeways

MANAGED LANE SIGNS

Section 2G.16 Signs for Managed Lanes – General Paragraphs from Existing Section 2G.03

Standard:

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.

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.

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 minimum vehicle occupancy in effect.

Support:

See Section 2G.~~17~~ 18 for regulatory signs for managed lanes that use tolling or pricing as a congestion management strategy, either exclusively or with other management strategies.

Section ~~2G.16~~ 2G.17 Signs for Priced Managed Lanes – General

Support:

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.

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.

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.

As priced managed lanes have become ~~more~~ prevalent as an operational strategy, it ~~will be~~is important to ~~establish~~ maintain 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:

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) as provided in this Chapter. 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).

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~~13), 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).

~~**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~~ 2G.18 Regulatory Signs for Priced Managed Lanes

Standard:

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.

Regulatory signs for preferential lanes shall be appropriately modified for adaptation to a priced managed lane, where applicable, as shown in Figure ~~2G-17~~2G-18.

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~~2G-18, shall be used to display the actual toll amount in effect at any given time.

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~~2G-18 and ~~2G-18~~2G-19.

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~~2G-18).

A priced managed lane Periods of Operation (R3-44 or R3-44a) sign (see Figure ~~2G-17~~2G-18) 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.

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:

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.

Figure 2G-18. Regulatory Signs for Managed Lanes

Figure 2G-19. Examples of Guide Signs for Entrances to Priced Managed Lanes

Standard:

R3-42 Series and R3-45 Series signs (see Figure ~~2G-17~~2G-18) 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~~ 2G.19 Guide Signs for Priced Managed Lanes

Standard:

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.

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.

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). Except as provided in Paragraph 5, ~~The~~ 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-~~18~~19). Paragraph relocated from later in Section

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. Paragraph relocated from later in Section

If registration in a toll-account program is not required for travel in a managed lane in which tolls are charged, then the ETC-account pictographs shall not be displayed on primary guide signs directing traffic to the managed lane. In such cases, the purple header panel shall be replaced with a warning header panel with a black legend and border on a yellow background displaying the word TOLL as illustrated in Figure 2G-20.

Option:

If the managed lane does not accept toll payments from an ETC account system and collects tolls only by post-travel billing of registered vehicle owners, then the legend TOLL BILLED BY MAIL ONLY may be displayed on a separate information sign within the sequence of primary guide signs in advance of the entrance to the managed lane.

If the managed lane accepts payments from registered ETC accounts, but does not require registration to use the lane, then the pictographs of the accepted ETC account programs may be displayed on a separate information sign within the sequence of primary guide signs in advance of the entrance to the managed lane. The information sign may also display the legend TOLL BILLED BY MAIL in addition to the pictograph of the accepted ETC account program.

Support:

Figure 2G-~~18~~19 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.

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

Guidance:

Exit Destination supplemental guide signs, identifying final destination and downstream exit locations accessible from the managed lane (see Figure 2G-~~19~~25), 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~~ 6 of Section 2G.11.

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~~2G-26) should be installed in advance of the initial and intermediate entry points to the managed lanes.

Option:

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:~~ **Paragraphs relocated to earlier in this Section**

~~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 .~~

~~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.~~

Figure 2G-20. Signing for Entrance to Access Restricted Price managed Lane – No ETC Account Required

Figure 2G-21. Signing for Entrance to Access Restricted Price managed Lane – ETC Account Required

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 the Intermediate Entry to a Barrier-or Buffer-Separated Priced Managed Lane

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

Figure 2G-25. Example of an Exit Destinations Sign for a Managed Lane

Figure 2G-26. Example of Comparative Travel Time Information Sign for Preferential or Managed Lanes

~~Support:~~

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

Standard:

The use and locations of guide signs for intermediate egress locations and direct exits from a priced managed lane (see Figure~~s~~ 2G-24 and Figures ~~through~~ 2G-27 through 2G-29) 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~~27).

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~~27).

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~~28).

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~~27, 2G-~~26~~28, and 2G-~~27~~29).

Support:

Section 2G.13 contains information on the use of overhead-mounted guide signs for intermediate egress to the general-purpose lanes.

Figures ~~2G-28~~2G-30 and ~~2G-29~~2G-31 show examples of guide signing for direct entrances to a priced managed lane from a crossroad or surface street.

Figure 2G-27. Examples of Guide Signs for an Intermediate Egress from a Barrier- or Buffer-Separated Managed Lane

Figure 2G-28. Examples of Guide Signs for a Direct Managed Lane Entrance and Exit Ramps

Figure 2G-29. Examples of Guide Signs for a Direct Access Ramp between Managed Lanes on Separate Freeways

Figure 2G-30. 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-31. Examples of Guide Signs for Separate Entrance Ramps to General-Purpose and Priced Managed Lanes from the Same Crossroad

Section 2G.20 Signs for Part-Time Travel on a Shoulder – General

Support:

In some cases, paved shoulders are allowed to be used for driving use during peak periods to manage congestion. Configurations might be on freeways and expressways, as well as on conventional roads. Travel on the shoulder during these periods might be restricted to certain classes of vehicles, such as buses or HOV, or might be open to general traffic. When the part-time travel on a shoulder is limited to certain classes of vehicles, the signing is similar to that for preferential lanes. Additional signing is typically used to advise road users that the shoulder is not available for emergency use during these periods. Part-time travel on a shoulder might also employ lane-use control signals and/or blank-out signs to inform traffic of the allowable use of the shoulder. Depending on the design of exit ramp terminals and auxiliary lanes, guide signs must account for exit maneuvers during both shoulder use conditions and might necessitate changeable legend elements. However, additional guide signs are not normally necessary specifically for the condition when the shoulder is used for travel. The pavement markings might also be modified where travel allowed on the shoulder begins and ends.

Figure 2G-32 shows an example of signing for part-time travel on a shoulder.

Figure 2G-32. Example of signing for Part-time Travel on a Shoulder

Standard:

A shoulder that has been opened to travel on a permanent, full-time basis shall be considered a travel lane and shall be signed and marked in accordance with other provisions of this Manual.

Support:

Section 3E.04 contains provisions regarding the placement of markings on paved shoulders that are open for part-time travel.

Section 2G.21 Regulatory Signs and Plaques for Part-Time Travel on a Shoulder

Standard:

Regulatory signs shall be used to notify road users of the periods of operation that travel is allowed on a paved shoulder. The Part-Time Travel on Shoulder Operation (R3-51) sign shall be used where traffic is allowed to travel on the shoulder during certain fixed periods of operation. The Part-Time Travel on Shoulder Variable Operation (R3-51d) sign with two flashing beacons (see Chapter 4S) mounted above it shall be used when the period of operation is variable

If certain classes of vehicles are not allowed to use the shoulder during these periods, then a Selective Exclusion (R3-51aP or R3-51bP) plaque shall be mounted below the R3-51 or R3-51d sign. If the travel on the shoulder is restricted to certain classes of vehicles, then the regulatory signs shall display that information.

Option:

The EMERGENCY STOPPING ONLY OTHER TIMES (R3-51cP) plaque may be mounted below the R3-51 sign if the R3-51aP or R3-51bP plaque is not used.

Guidance:

The TRAVEL ON SHOULDER BEGINS ½ MILE (R3-52c) sign should be used in advance of the location where part-time travel on shoulder first begins and followed by the DO NOT DRIVE ON SHOULDER (R4-17) sign appropriately spaced downstream.

Standard:

Approximately ½ mile from where part-time travel on shoulder ends the TRAVEL ON SHOULDER ENDS (R3-52a) sign shall be used. At the location provided for traffic to transition from shoulder travel back to permanent highway lane travel, an END TRAVEL ON SHOULDER (R3-52) sign shall be used. After this transition location a DO NOT DRIVE ON SHOULDER (R4-17) sign shall be used.

Guidance:

Where a shoulder that allows part-time travel is interrupted by a deceleration lane for an exit, the BEGIN EXIT LANE (R3-56) sign should be used at the beginning of the deceleration lane where traffic is allowed to enter during the periods that travel is prohibited on the shoulder.

Where turnouts are provided for emergency stopping during periods when travel is allowed on the shoulder, the EMERGENCY STOPPING ONLY (R8-7) sign (see Section 2B.49) should be used adjacent to the turnout.

Where traffic on an entrance ramp is required to yield to traffic using the shoulder of the freeway or expressway mainline during the periods when travel is allowed on the shoulder, the TO TRAFFIC ON SHOULDER (R3-57P) plaque should be mounted below the Yield (R2-1) sign (see Section 2B.08).

Section 2G.22 Warning Signs for Part-Time Travel on a Shoulder

Guidance:

The Traffic Using Shoulder (W3-9) sign should be used on a ramp that enters a freeway or expressway on which part-time travel is allowed on the shoulder. When used, the W3-9 sign should be located on the side of the ramp from which the shoulder traffic approaches (see Figure 2G-32).

Option:

The W3-9 sign may be used on a conventional road that is required to stop for or yield to the through street or highway on which part-time travel is allowed on the shoulder.

Section 2G.23 Guide Signs for Part-Time Travel on a Shoulder

Support:

Guide signs for part-time travel on a freeway or expressway shoulder generally consist of the typical interchange guide sign sequence (see Chapter 2E). While specialized guide signs are not normally necessary, modifications to the typical guide signs might be necessary, especially where an interchange lane drop is created only during the periods when the shoulder is open to travel.

Standard:

Where an interchange lane drop is created only during the periods when a shoulder is open to travel, the Advance and Exit Direction guide signs (see Sections 2E.24 and 2E.26) shall be overhead-

mounted and shall be modified to include a blank-out or changeable EXIT ONLY message that complies with the provisions of Section 2E.29 and is displayed only during the periods that the shoulder is open to travel (see Figure 2G-32).

Guide signs located in conjunction with part-time travel on a shoulder shall otherwise comply with the provisions of Chapters 2D and 2E.

Guidance:

Where turnouts are provided for emergency stopping during periods when travel is allowed on the shoulder, the Emergency Turn-Out directional (D17-6) sign should be used as provided in Section 2D.51.

Section 2G.24 Lane-Use Control Signals for Part-Time Travel on a Shoulder

Support:

Lane-use control signals (see Chapter 4T) are sometimes used for part-time travel on a paved shoulder, in addition to signs, to indicate the allowable use of the shoulder.

Option:

Overhead lane-use control signals may be used above a shoulder on which part-time travel is allowed.

Standard:

Except as otherwise provided in this Section, lane-use control signals that are used for part-time travel on a shoulder shall comply with the provisions of Chapter 4T. When used for part-time travel on a shoulder, lane-use control signals shall not be required above the lanes adjacent to the shoulder. When used for part-time travel on a shoulder, a steady RED X signal indication shall be displayed when the shoulder is available for emergency stopping only and travel on the shoulder is otherwise prohibited.

When part-time travel on shoulder is allowed for variable periods of operation, lane-use control signals (see Chapter 4T) shall be used and evenly spaced approximately every ½ mile or less and centered over the shoulder to indicate when the shoulder is open or closed to vehicle travel. The lane-use control signals shall display a green down arrow during times when travel is allowed on the shoulder, followed by a yellow X just before the shoulder is to be closed to travel, and a red X when shoulder travel is discontinued. Additionally, during the period when travel is allowed on the shoulder a lane-use control signal that continuously displays a yellow X shall be used approximately ½ mile in advance of the location where part-time travel on the shoulder ends, and then displays a red X the travel on shoulder ends. A lane-use control signal with a red X shall be displayed at all times at the location where part-time travel on the shoulder ends.

Option:

For part-time travel on shoulder with variable periods of operation, post-mounted TRAVEL ON SHOULDER ALLOWED WHEN FLASHING (R3-51d) signs with flashing beacons may be used lieu of the lane-use control signals at the same intervals.

The TRAVEL ON SHOULDER ON GREEN AROW ONLY (R3-51e) sign may be used with a lane-use control signal; mounted adjacent to the signal head, elsewhere on the signal support, ground mounted next to, or in advance of, the signal.

Section 2G.25 Lane-Use Control Signals for Active Lane Management on Freeways and Expressways

Support:

Active lane management is a component of active traffic management in which the use of travel lanes and speed limits might be varied in real time in response to traffic conditions to manage congestion. Active lane management might employ lane-use control signals (see Chapter 4T) and/or changeable message signs (see Chapter 2L). Figure 2G-33 shows an example of lane-use control signals and Variable Speed Limit signs for active lane management during an incident

Figure 2G-33. Example of Lane-Use Control Signals and Variable Speed Limit Signs for Active Lane Management During an Incident

Standard:

Except as otherwise provided in this Section, lane-use control signals that are used for active lane management shall comply with the provisions of Chapter 4T. When used for active lane management

on a freeway or expressway, a steady YELLOW X signal indication shall be displayed to warn road users to vacate the lane when the next downstream lane-use control signal over the same lane is displaying a steady RED X signal indication.

Option:

A steady YELLOW X signal indication may be displayed on one or more lane-use control signals in advance of the steady YELLOW X signal indication required by Paragraph 2 as conditions warrant to warn road users to vacate the lane.

Support:

Using too many YELLOW X signal indications could diminish the effectiveness of the YELLOW X in conveying the lane is closed a short distance ahead and the road user needs to vacate the lane soon

Standard:

When operated in conjunction with a temporary planned lane closure, lane-use control signals shall only supplement the temporary traffic control devices as provided in Part 6 of this Manual.

Guidance:

Spacing of lane-use control signals for active lane management on freeways and expressways should be at ½-mile intervals. Closer spacing should be used where the viewing distance is limited by the roadway geometry, overcrossings or other sight obstructions, or where traffic entering from intervening interchange ramps is not adequately served by the ½-mile spacing.

Combining lane-use control signals with overhead sign support structures should be minimized to avoid overloading road users with too much information or conflicting or incorrect messages, such as exclusive lane use or lane drop implied by the display of a DOWNWARD GREEN ARROW below a guide sign.

Section 2G.26 Variable Speed Limits for Active Traffic Management on Freeways and Expressways

Support:

Active traffic management on freeways and expressways might employ variable speed limits as an element of an overall congestion management plan using changeable Speed Limit (R2-1) signs (see Section 2B.22).

Careful consideration is needed in locating Variable Speed Limit signs along the roadway and potential positioning adjacent to Guide signs or Lane-Use Control signals so that the speed displayed is clearly associated with the lane or lanes intended to be regulated and not other adjacent lanes, ramps or roadways. This might result in the need to place Variable Speed Limit signs on separate supports away from Guide and other signs or Lane-Use Control signals.

Standard:

The regulatory speed displayed on a changeable Speed Limit sign shall comply with Paragraph 2 of Section 2B.22 of this Manual.

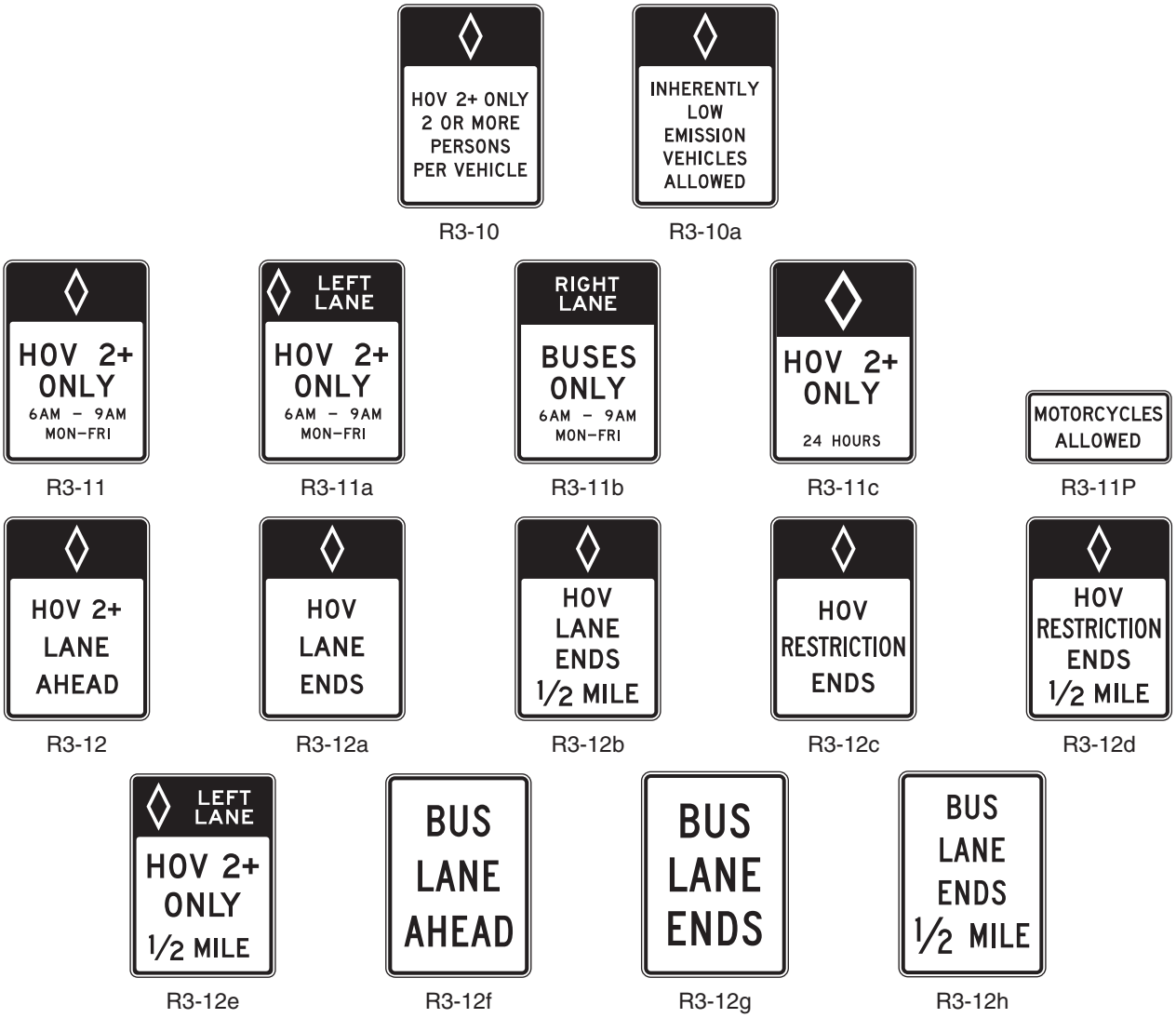
Guidance:

The location and positioning of Variable Speed Limit signs should clearly associate the speed displayed to the lane or lanes intended to be regulated such that it would not present a conflict or confusion with other posted speed limit or advisory speeds for adjacent lanes, ramps or roadways.

In addition to the post-interchange Speed Limit sign (see Section 2E.38), the spacing of changeable Speed Limit signs on freeways and expressways should be based on an engineering study that considers such factors as recurring congestion, high-volume interchanges, weaving sections, and other location-specific factors that are known to affect travel speeds. The changeable Speed Limit signs should be placed far enough in advance of known congestion points to adequately adjust the operating speed to minimize the extent of vehicle queuing.

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

POST-MOUNTED PREFERENTIAL LANE SIGNS

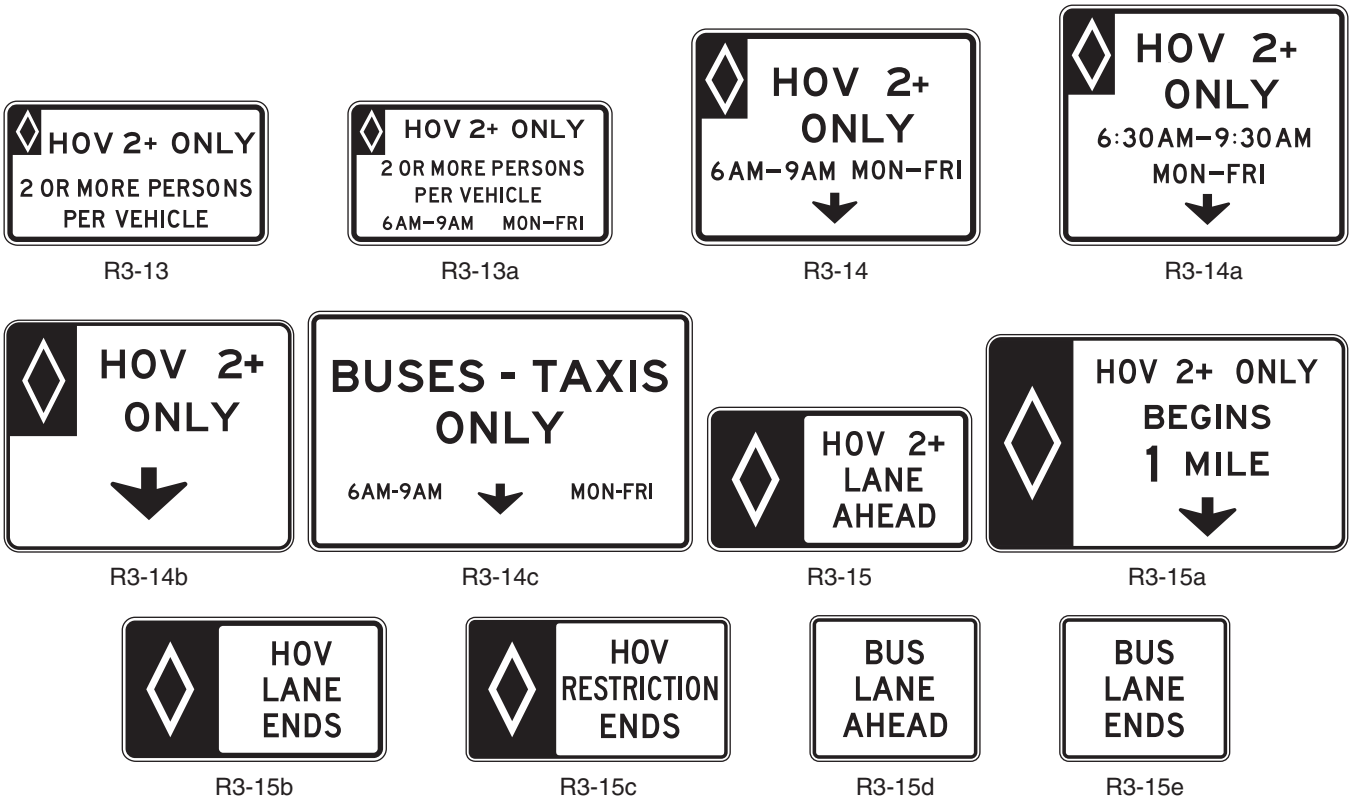


Notes:

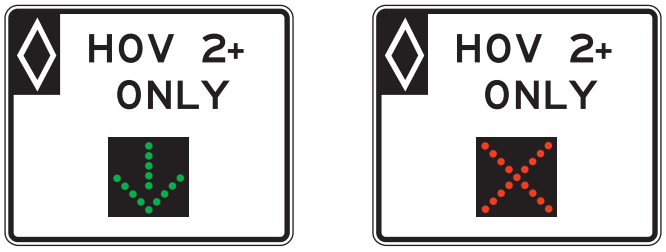
1. The minimum vehicle occupancy requirement may vary for each facility (such as 2+, 3+, 4+).
2. The occupancy requirement may be added to the first line of the R3-12a, R3-12b, R3-12c, and R3-12d signs.
3. Some of the legends shown on these signs are for example purposes only. The specific legend for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

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

OVERHEAD PREFERENTIAL LANE SIGNS



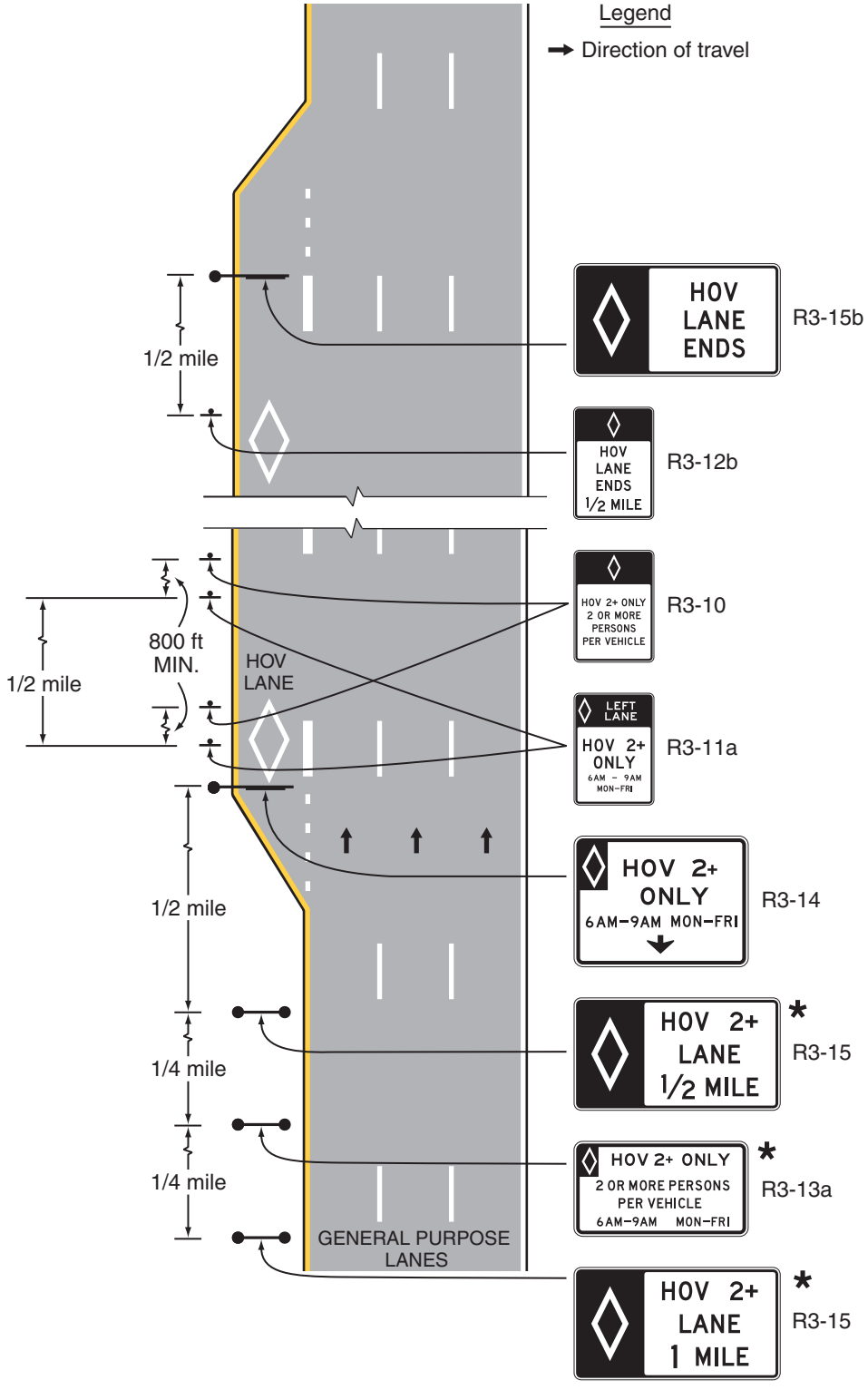
A lane-use control signal may be incorporated into an overhead preferential lane regulatory sign to indicate the status of a reversible operation as shown in the following example:



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.

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

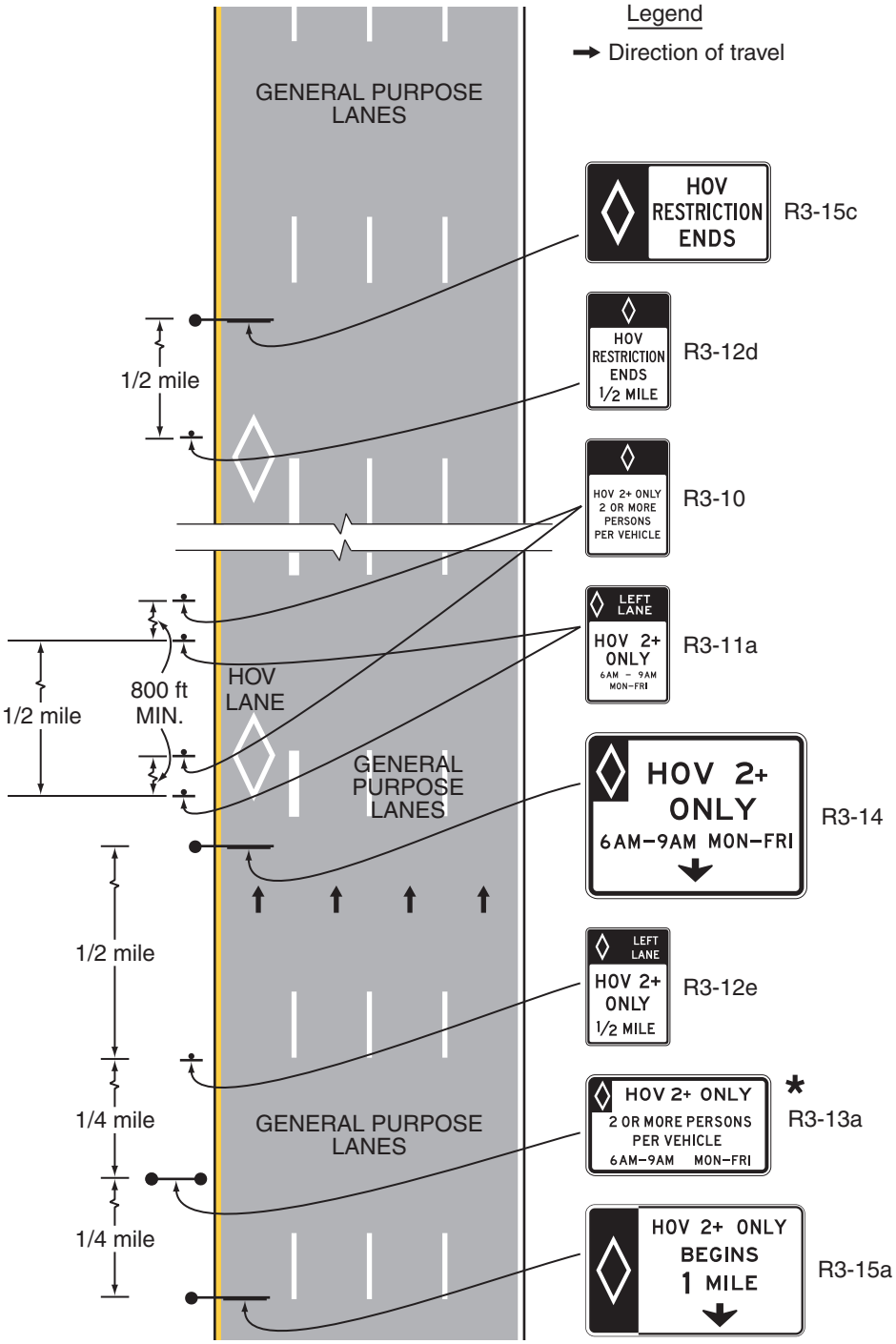


Notes:

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



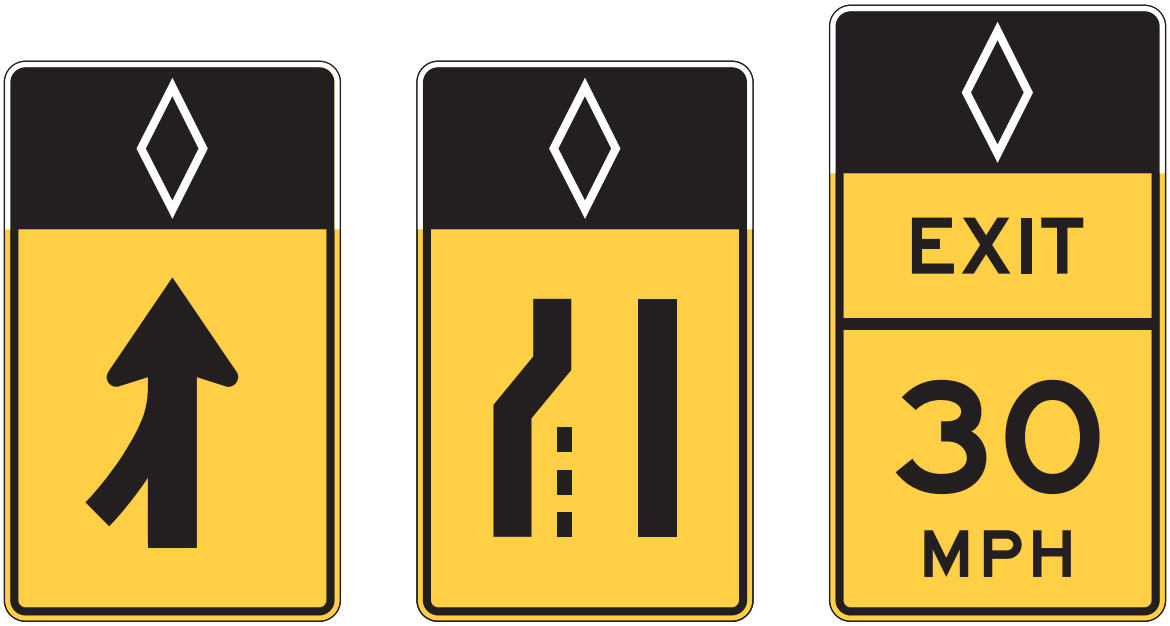
Notes:

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

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.

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.

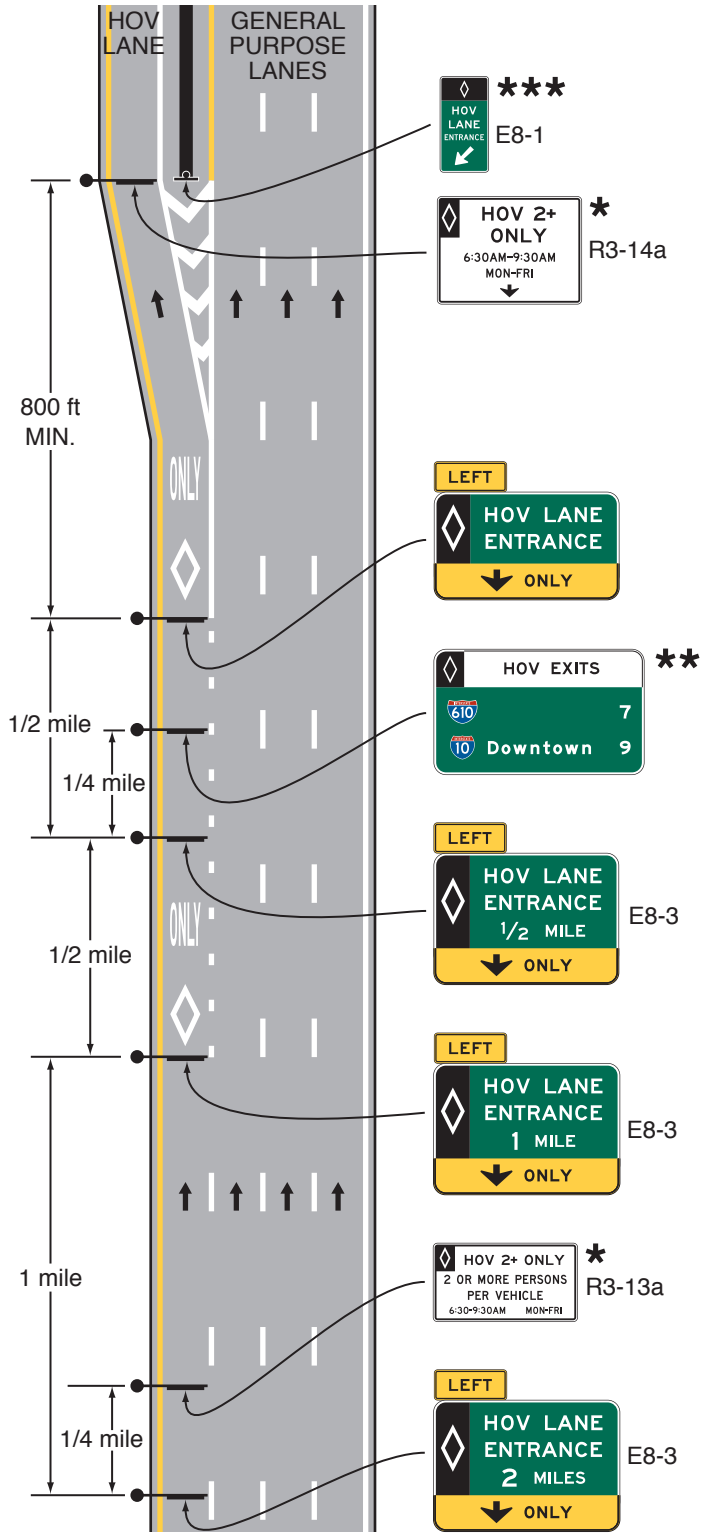
Figure 2G-7. Entrance Gore Signs for Barrier-Separated Preferential Lanes

E8-1

E8-1a

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.

Figure 2G-8. Example of Signing for the Entrance to an Access-Restricted HOV Lane Where a General-Purpose Lane Becomes the HOV Lane



Legend

↑ Direction of travel

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

** For access-restriced facilities. Destinations may be augmented to accompany routes on Interchange Sequence signs (see Figure 2E-31)

*** Barrier-separated facilities only

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

Figure 2G-9. Example of Signing for an Entrance to Access-Restricted HOV Lanes

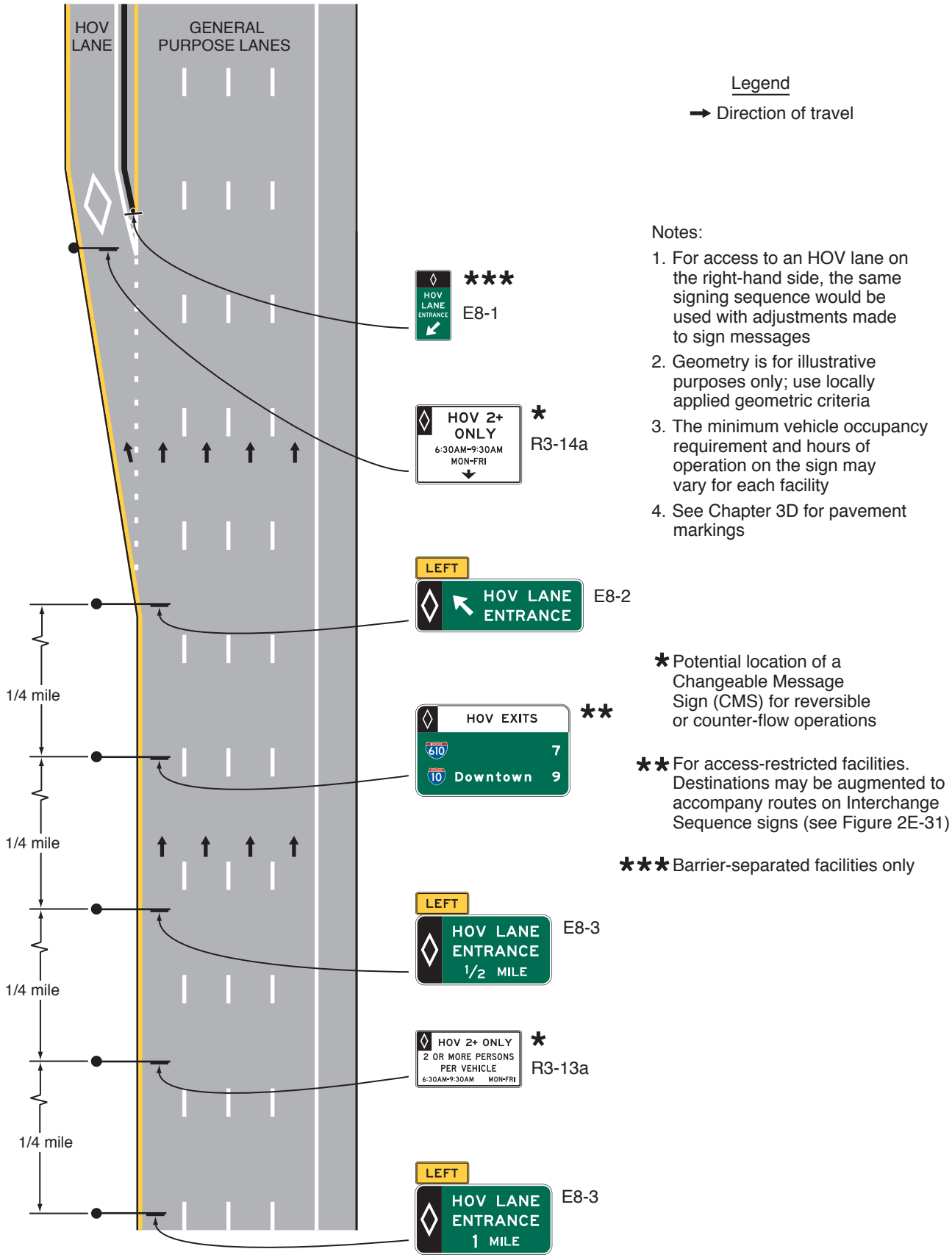
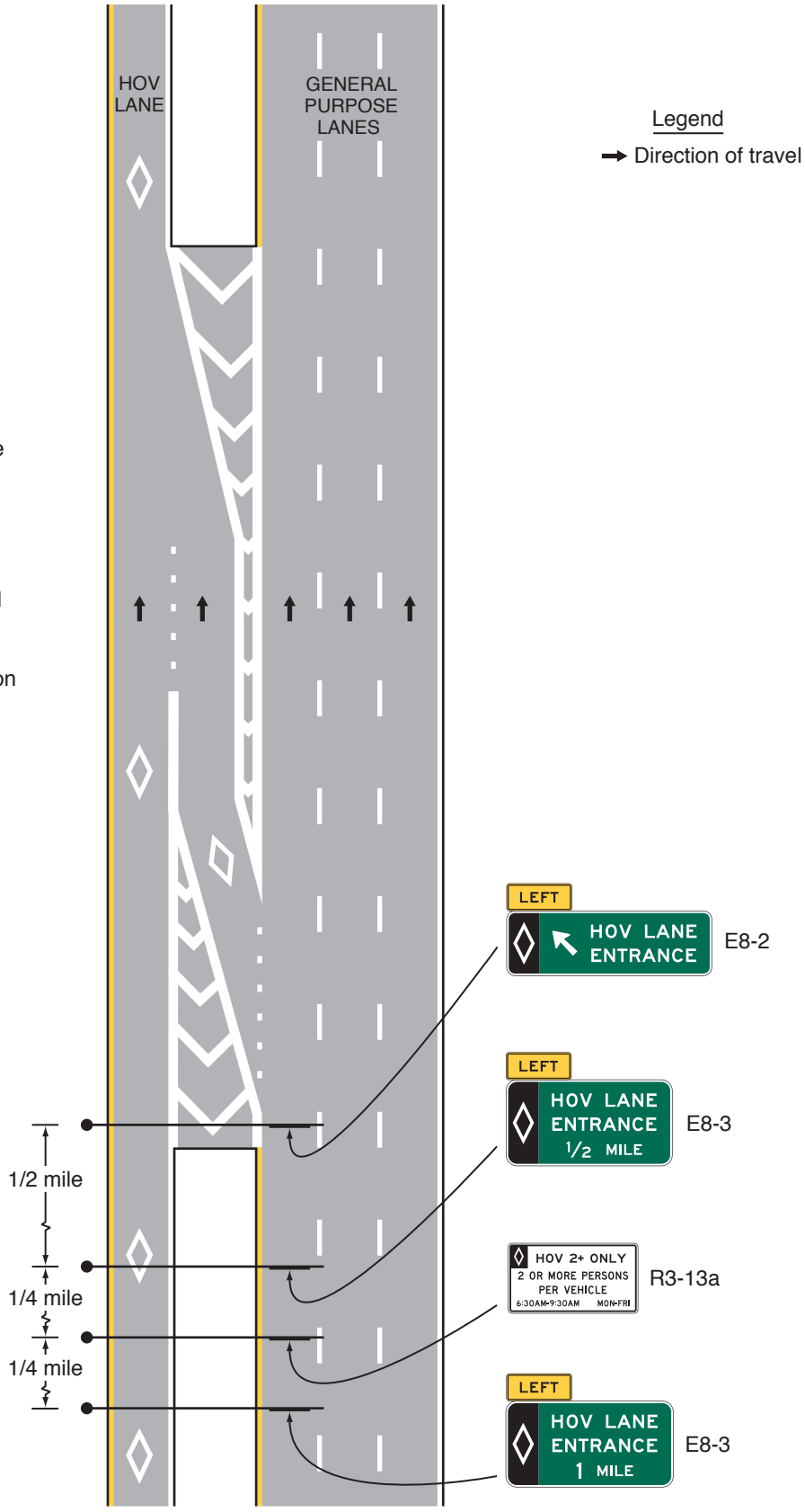


Figure 2G-10. Example of Signing for an Intermediate Entry to a Barrier- or Buffer-Separated HOV Lane



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-11. Example of Signing for the Intermediate Entry to, Egress from, and End of Access-Restricted HOV Lanes

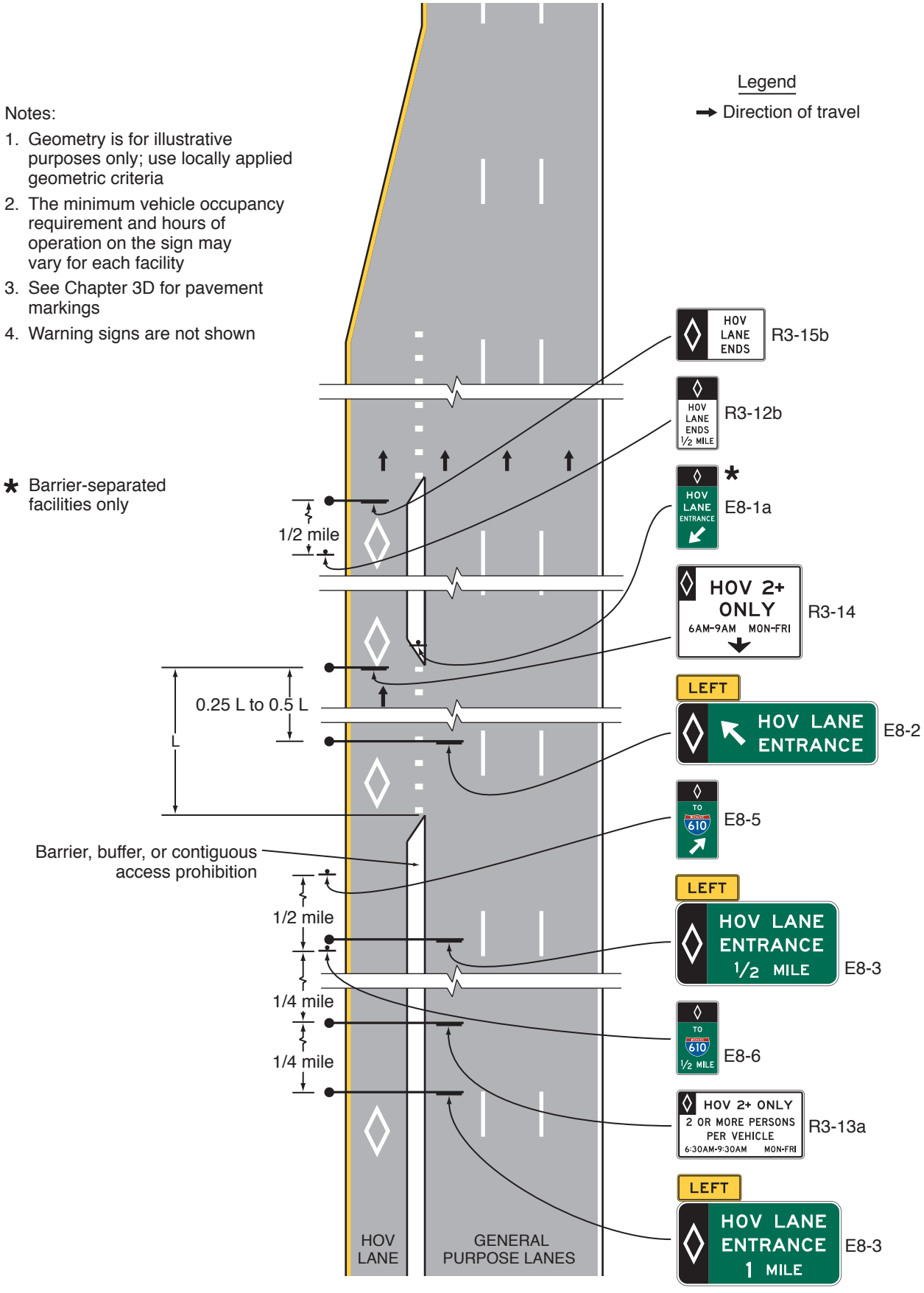
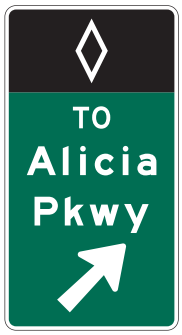
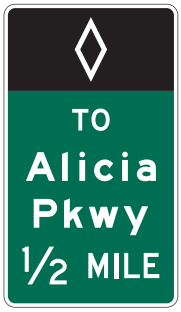


Figure 2G-12. Examples of Barrier-Mounted Guide Signs for an Intermediate Egress from Preferential Lanes



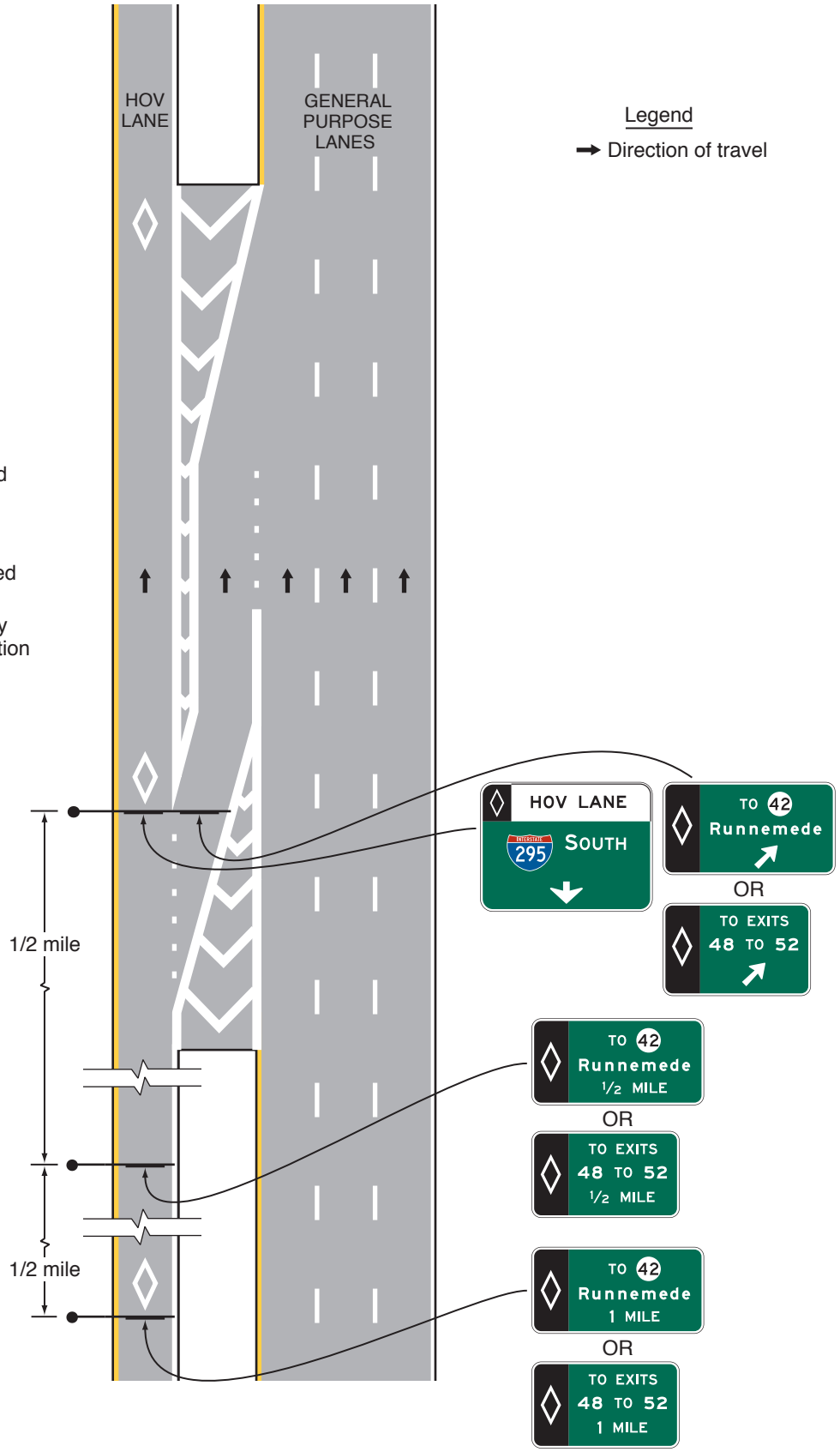
E8-5



E8-6

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.

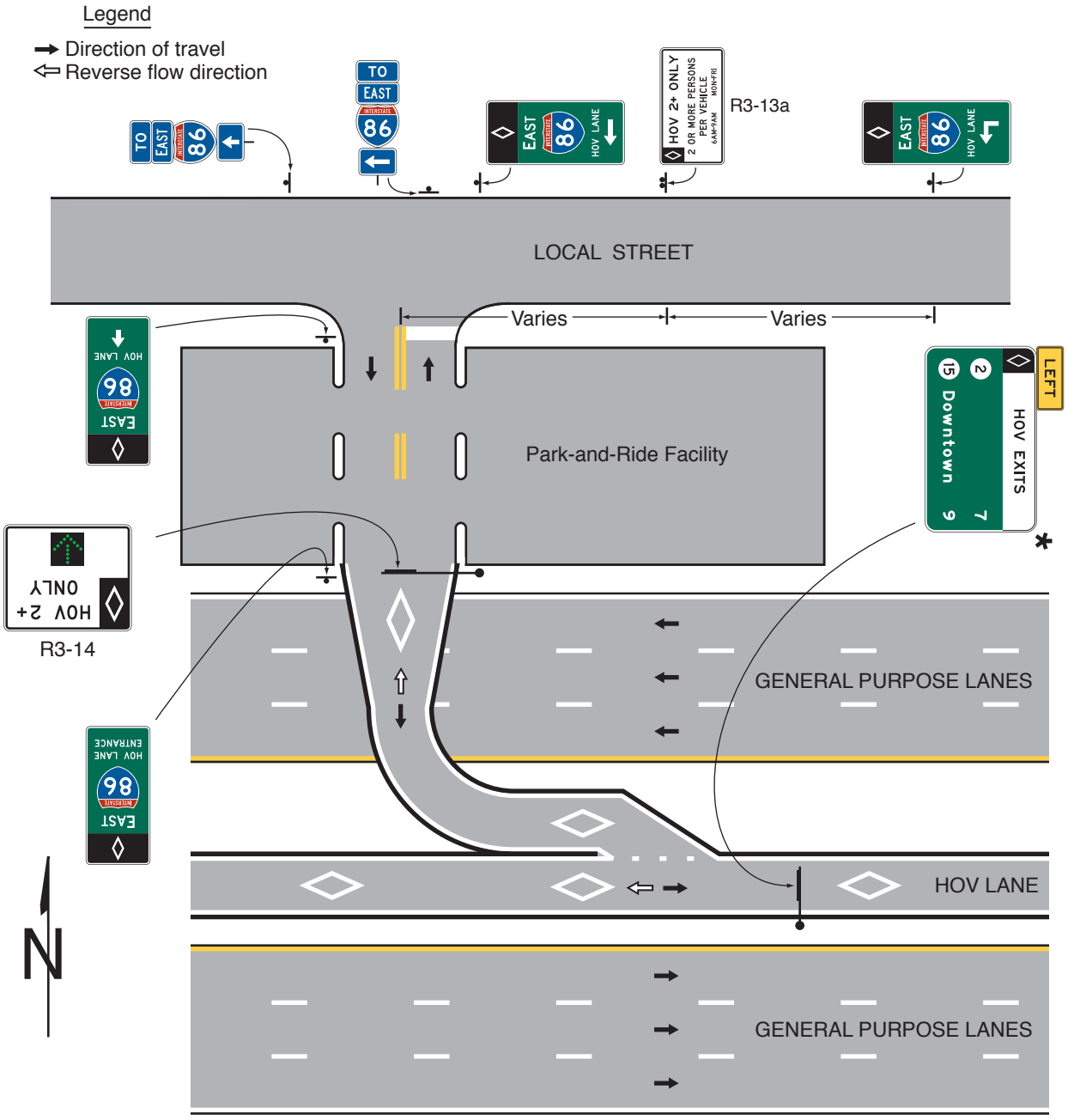
Figure 2G-13. Examples of Signs for an Intermediate Egress from a Barrier- or Buffer-Separated HOV Lane



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-14. 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-15. 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.

Figure 2G-16. Examples of Guide Signs for Direct HOV Lane Entrance and Exit Ramps

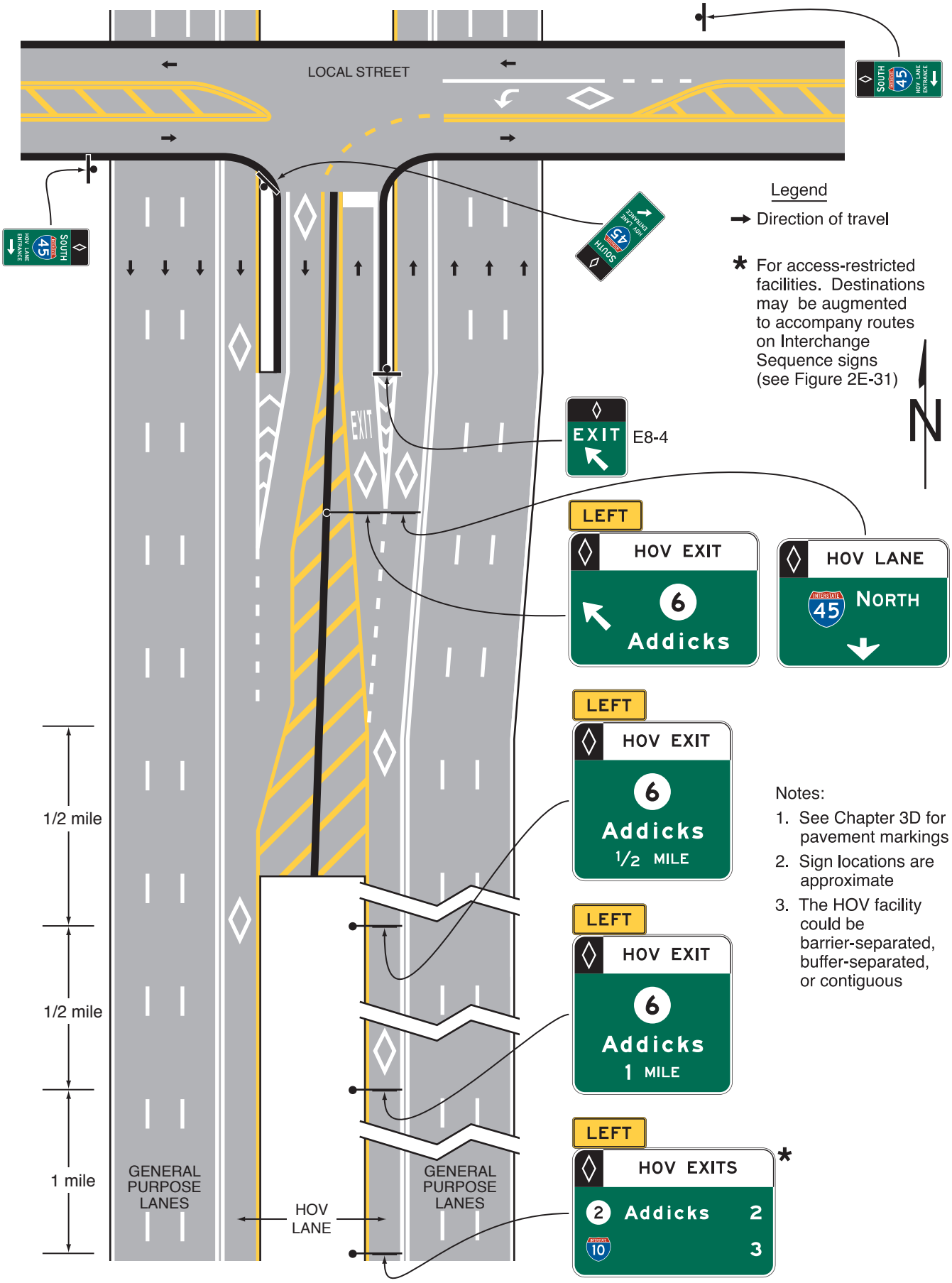
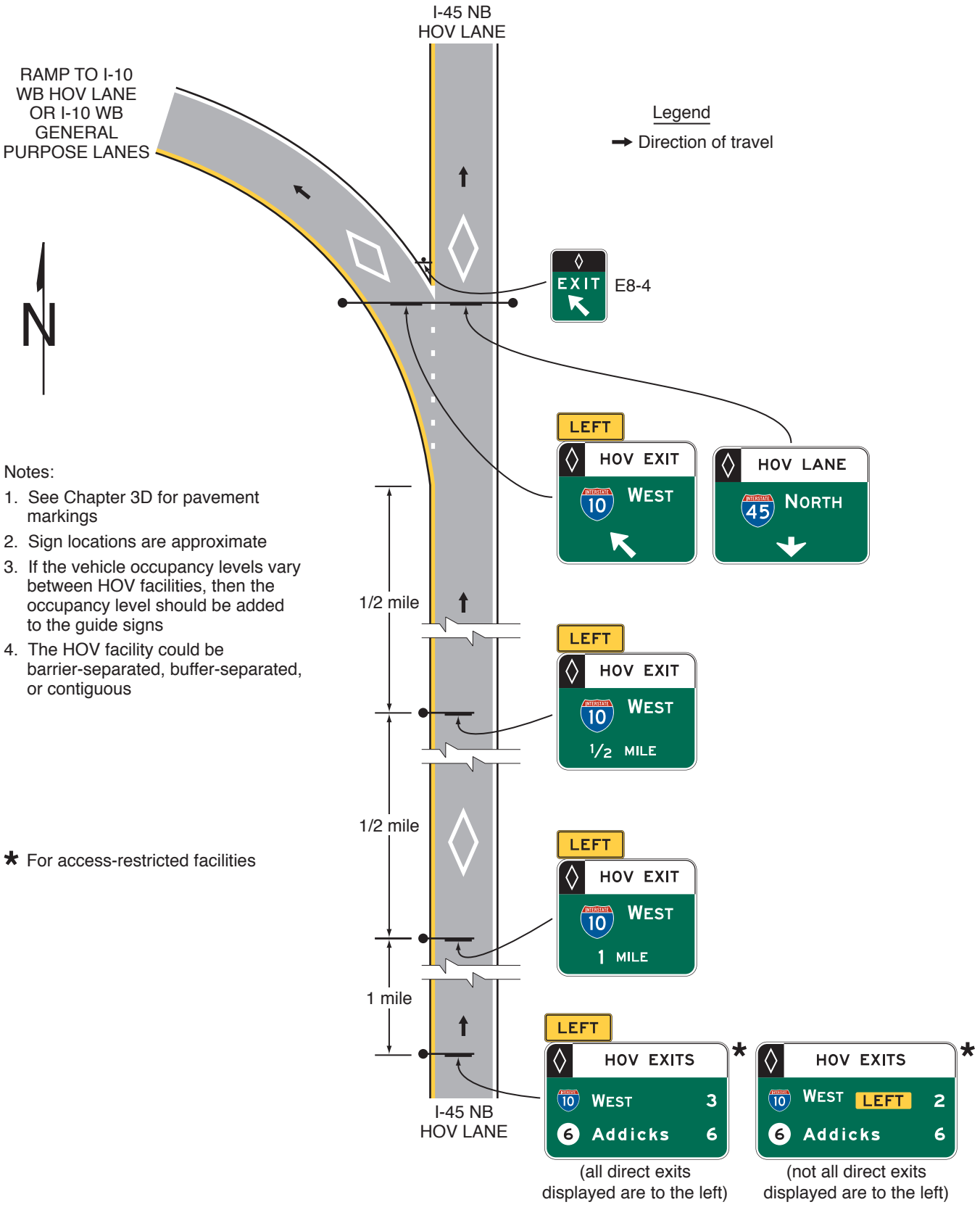


Figure 2G-17. Examples of Guide Signs for a Direct Access Ramp between HOV Lanes on Separate Freeways



Notes:

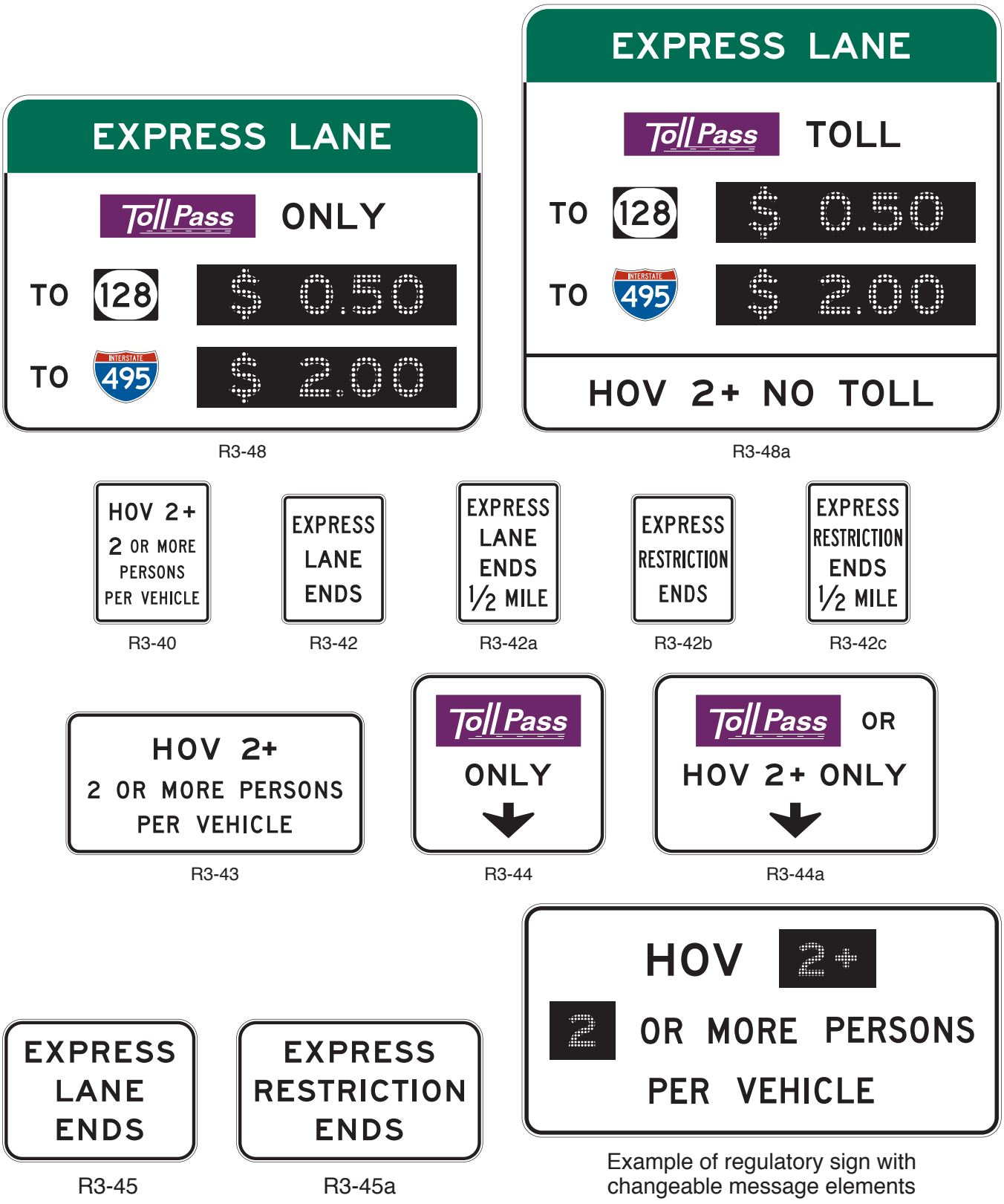
1. See Chapter 3D for pavement markings
2. Sign locations are approximate
3. If the vehicle occupancy levels vary between HOV facilities, then the occupancy level should be added to the guide signs
4. The HOV facility could be barrier-separated, buffer-separated, or contiguous

* For access-restricted facilities

(all direct exits displayed are to the left)

(not all direct exits displayed are to the left)

Figure 2G-18. Regulatory Signs for Managed Lanes



Notes:

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

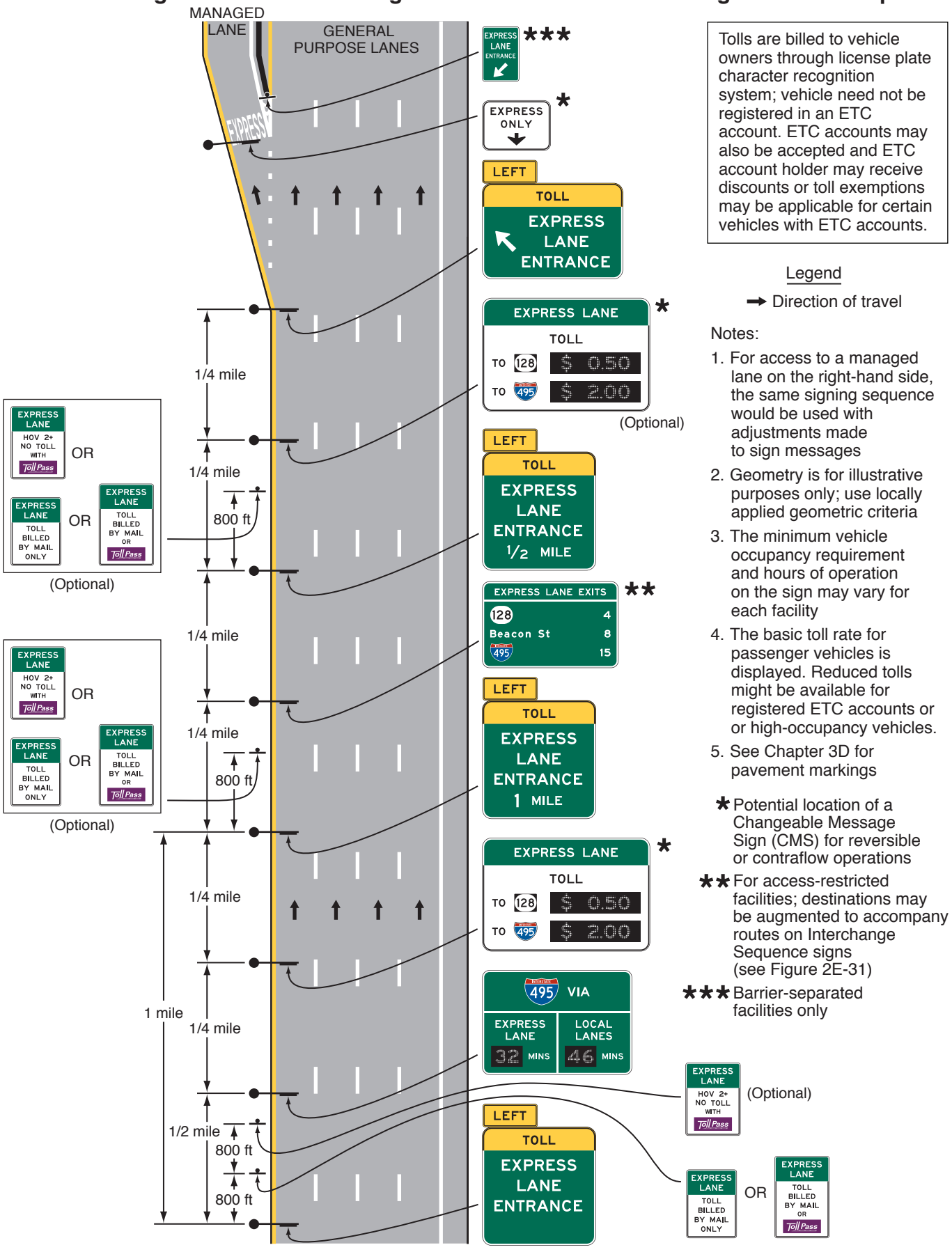
Figure 2G-19. Examples of Guide Signs for Entrances to Priced Managed Lanes

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

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

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

Figure 2G-20. Example of Signing for the Entrance to an Access-Restricted Priced Managed Lane on which Registration in a Toll Account Program is not Required



Tolls are billed to vehicle owners through license plate character recognition system; vehicle need not be registered in an ETC account. ETC accounts may also be accepted and ETC account holder may receive discounts or toll exemptions may be applicable for certain vehicles with ETC accounts.

Legend

→ Direction of travel

Notes:

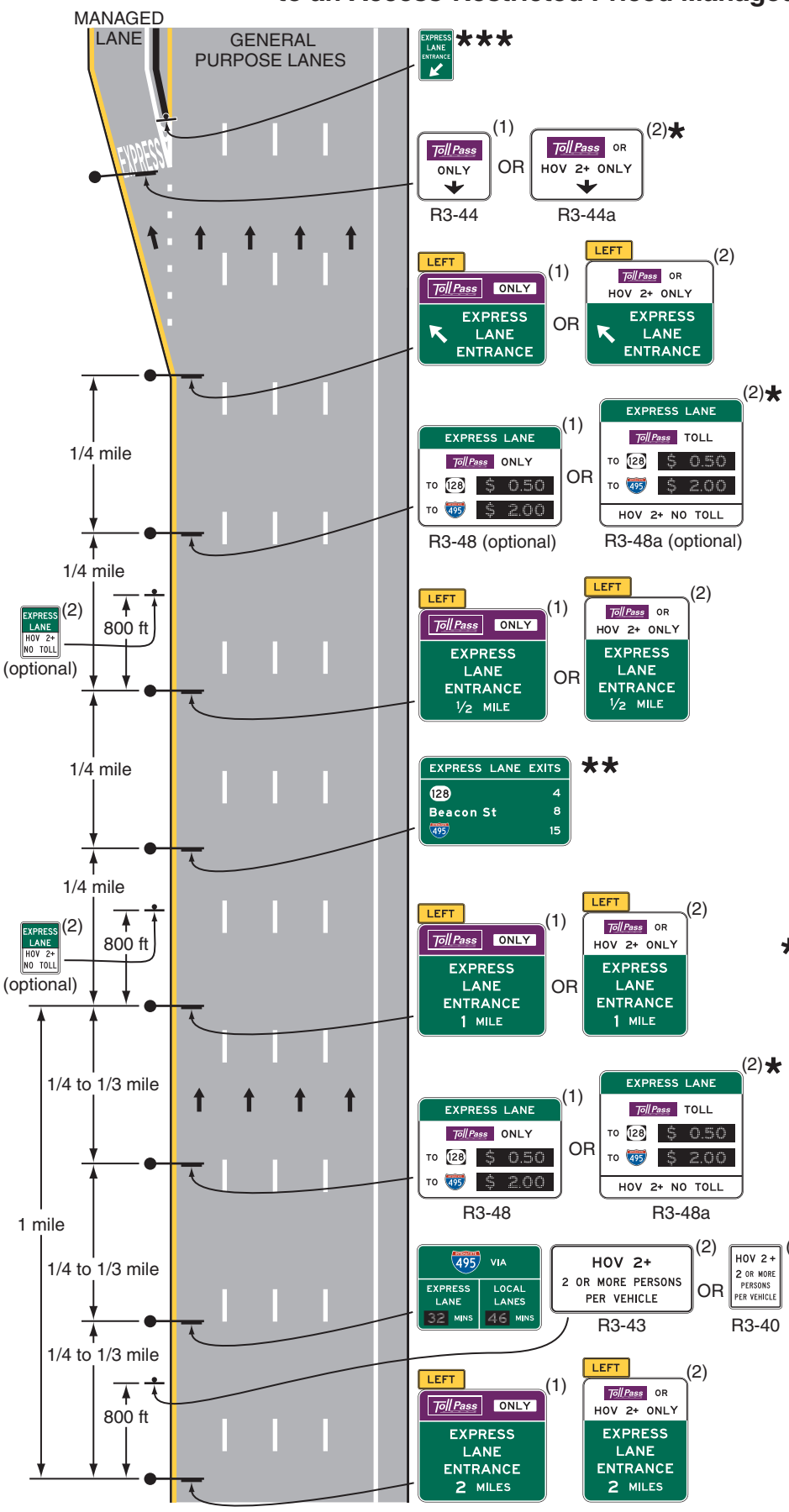
1. For access to a managed lane on the right-hand side, the same signing sequence would be used with adjustments made to sign messages
2. Geometry is for illustrative purposes only; use locally applied geometric criteria
3. The minimum vehicle occupancy requirement and hours of operation on the sign may vary for each facility
4. The basic toll rate for passenger vehicles is displayed. Reduced tolls might be available for registered ETC accounts or or high-occupancy vehicles.
5. See Chapter 3D for pavement markings

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

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

*** Barrier-separated facilities only

Figure 2G-21. Example of Signing for the Entrance to an Access-Restricted 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

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

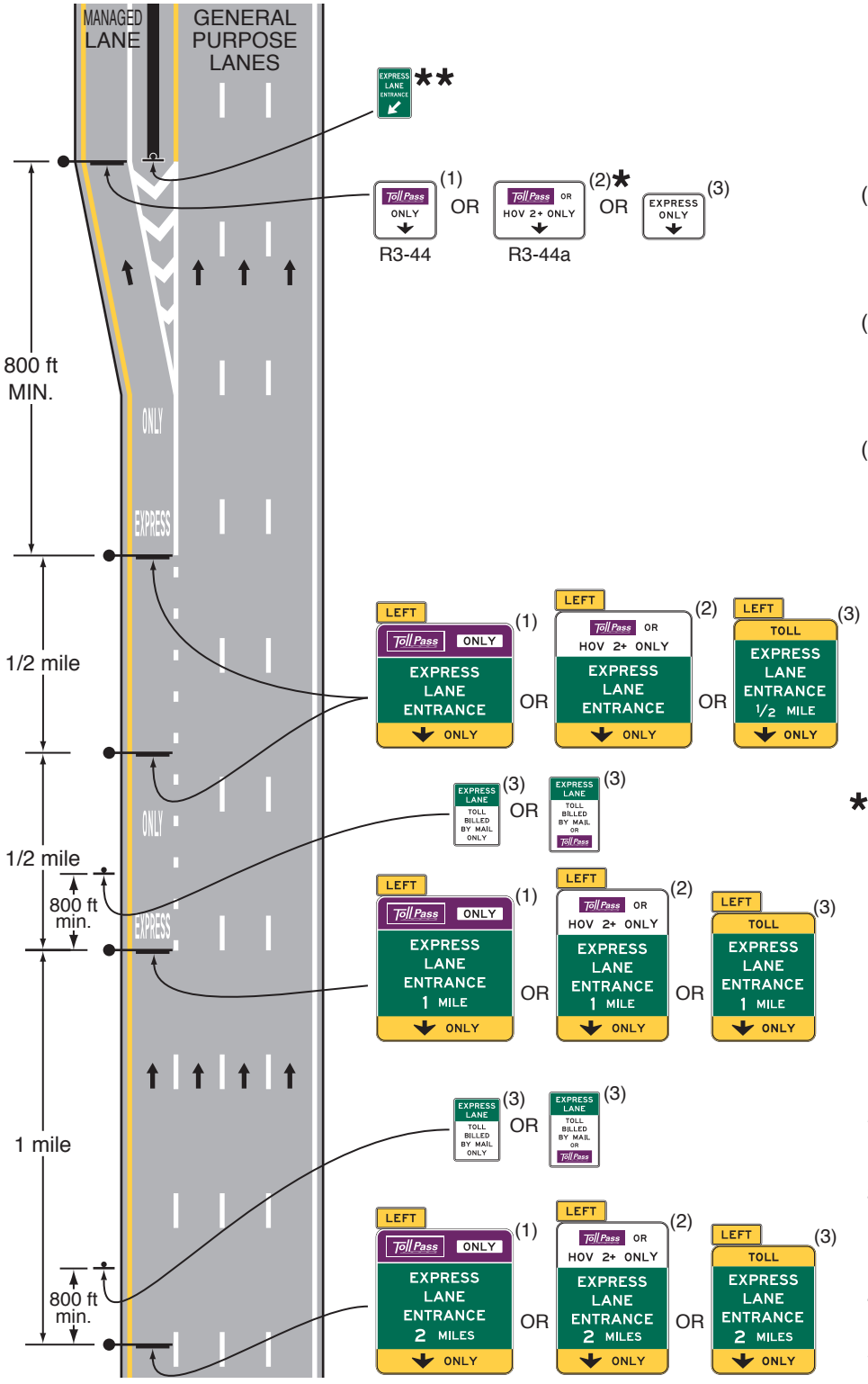
** For access-restricted facilities; destinations may be augmented to accompany routes on Interchange Sequence signs (see Figure 2E-31)

*** Barrier-separated facilities only

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



Legend

↑ Direction of travel

(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.

(3) No registration in an ETC account is required. Tolls are billed by mail to vehicle owners through license plate recognition system. ETC account payment may also be accepted by system.

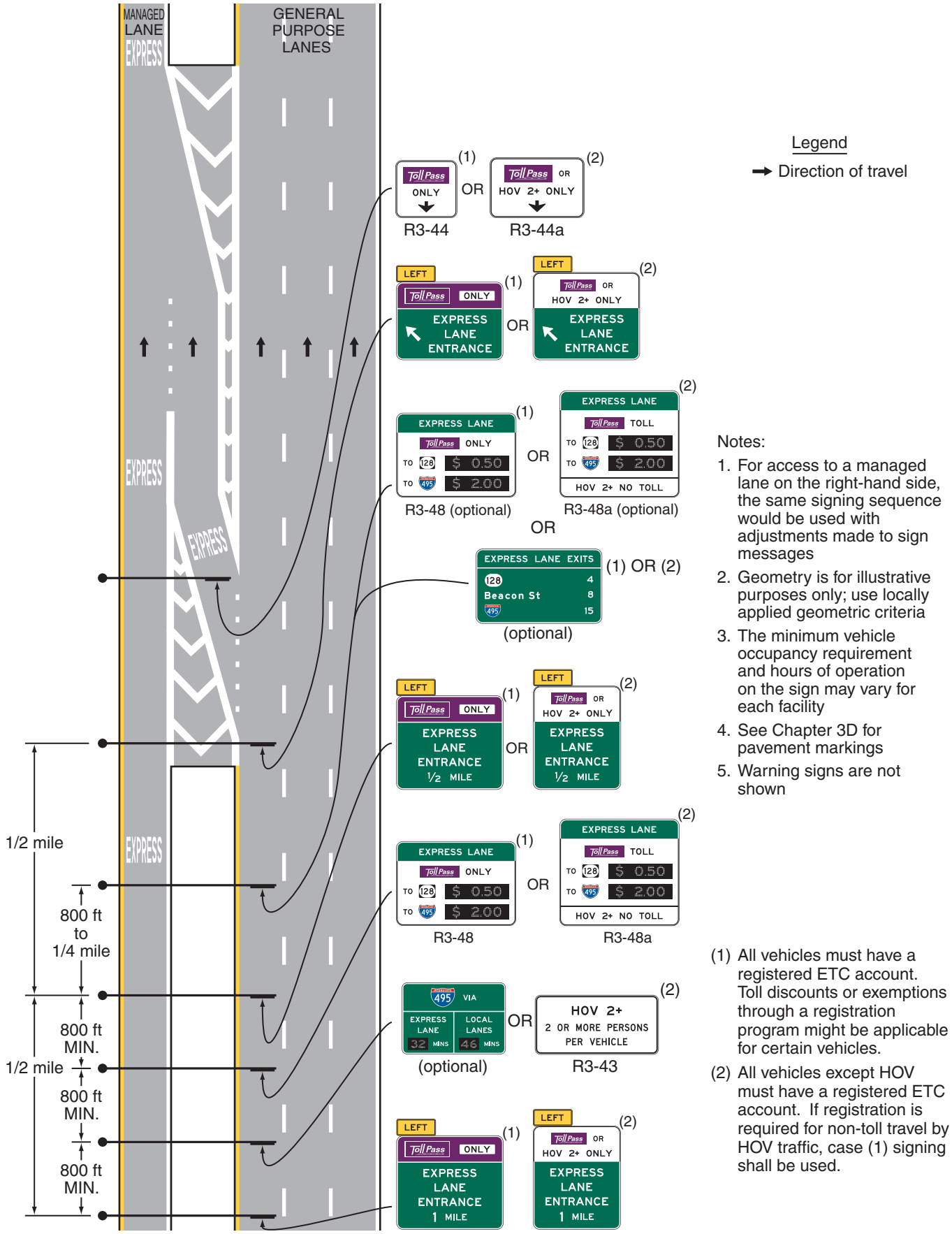
* Potential location of a Changeable Message Sign (CMS) for reversible or contraflow operations

** Barrier-separated facilities only

Notes:

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

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



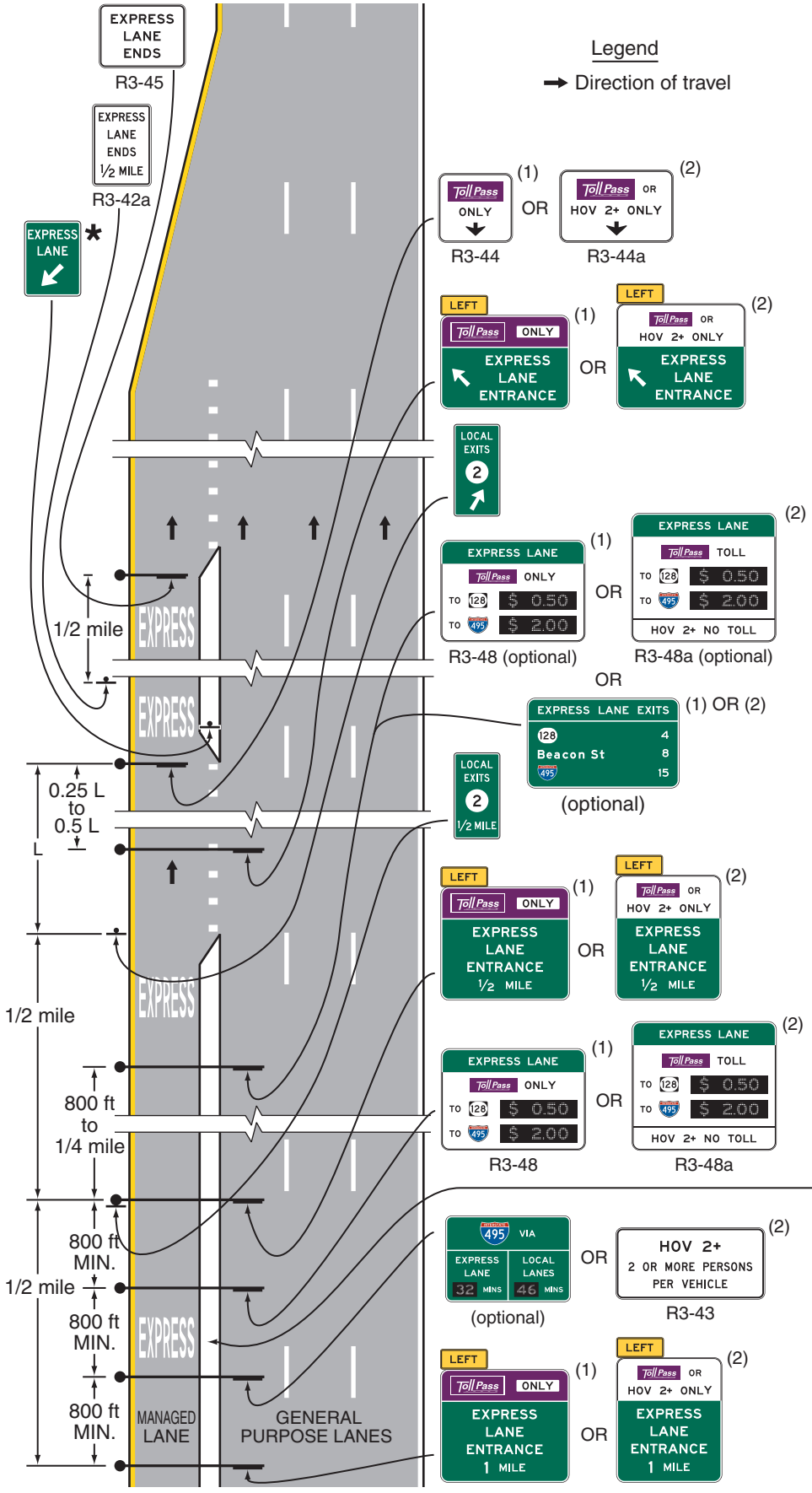
Notes:

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



Notes:

1. Geometry is for illustrative purposes only
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

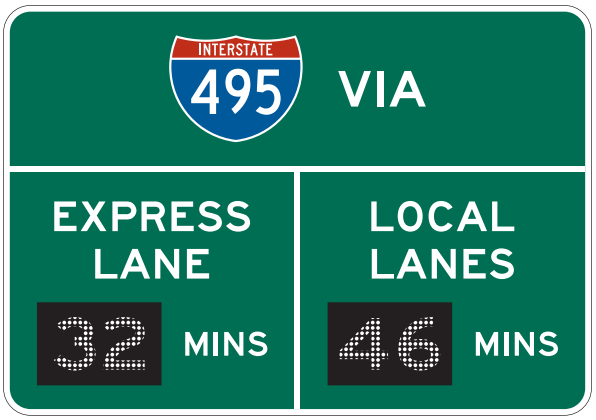
(1) All vehicles must have a registered ETC account. Toll discounts or exemptions through a registration program might be applicable for certain vehicles.

(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.

✱ Barrier-separated facilities only

Figure 2G-25. Example of an Exit Destinations Sign for a Managed Lane

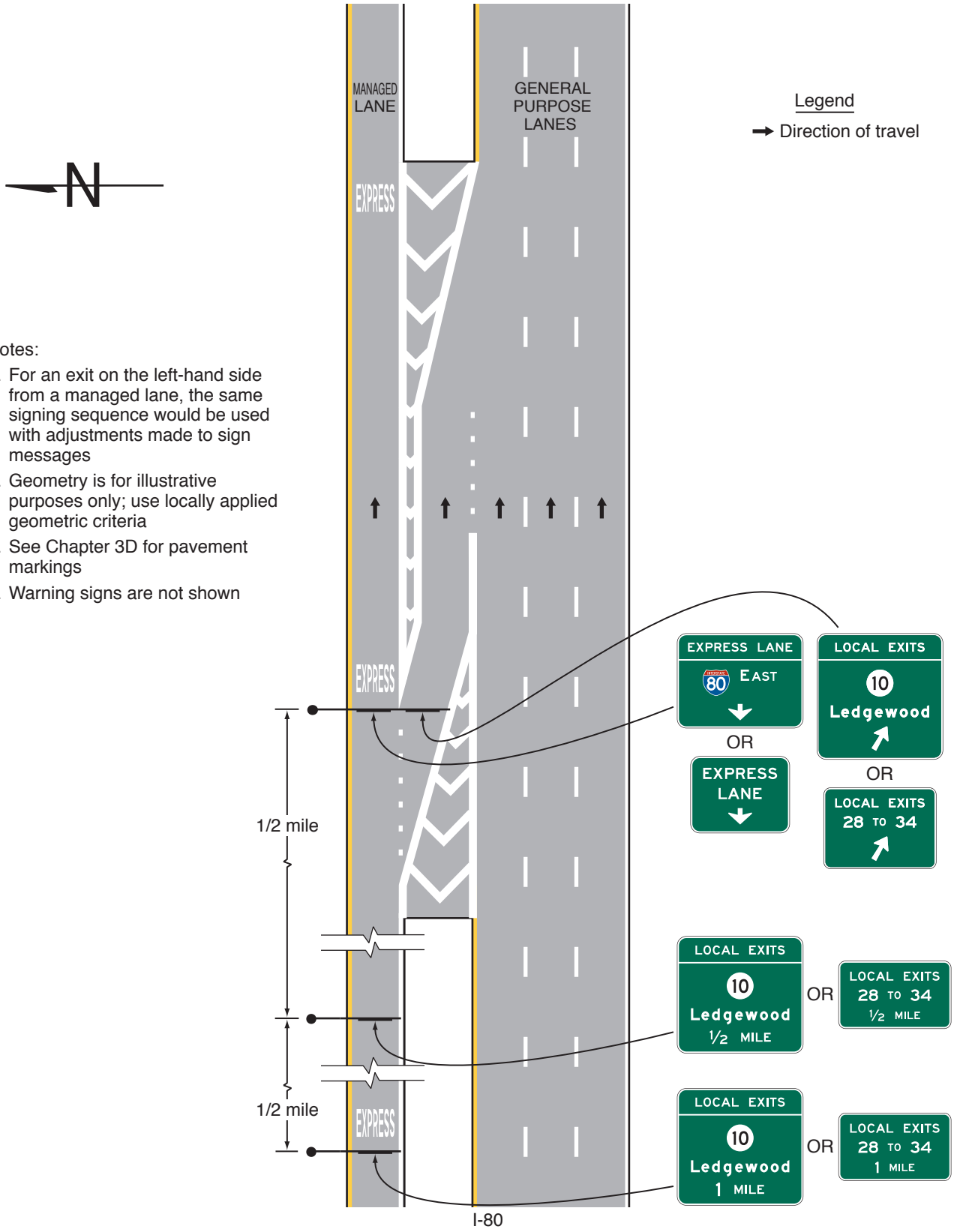
Figure 2G-26. Example of a Comparative Travel Time Information Sign for Preferential or Managed Lanes



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-27. 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-28. Examples of Guide Signs for Direct Managed Lane Entrance and Exit Ramps

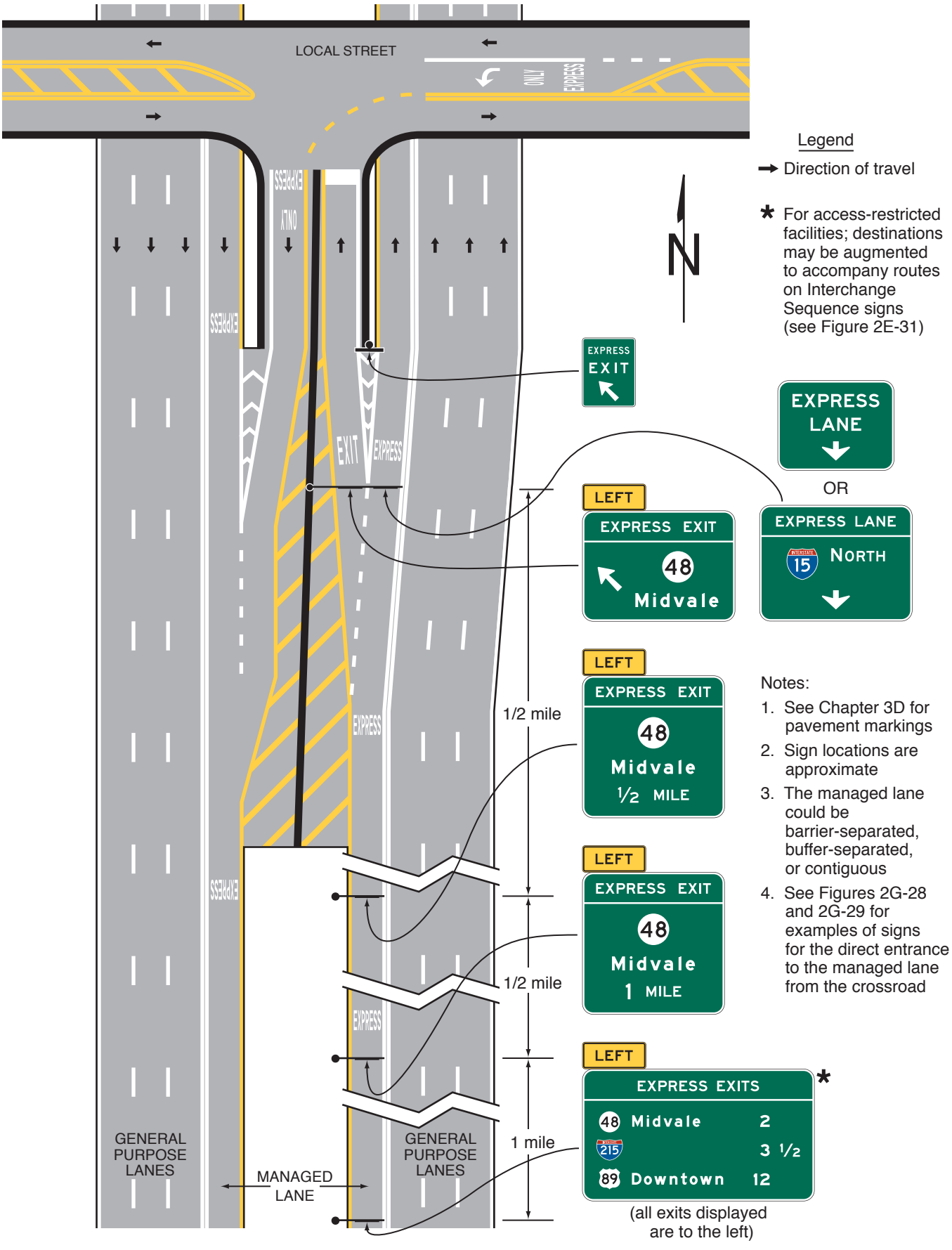
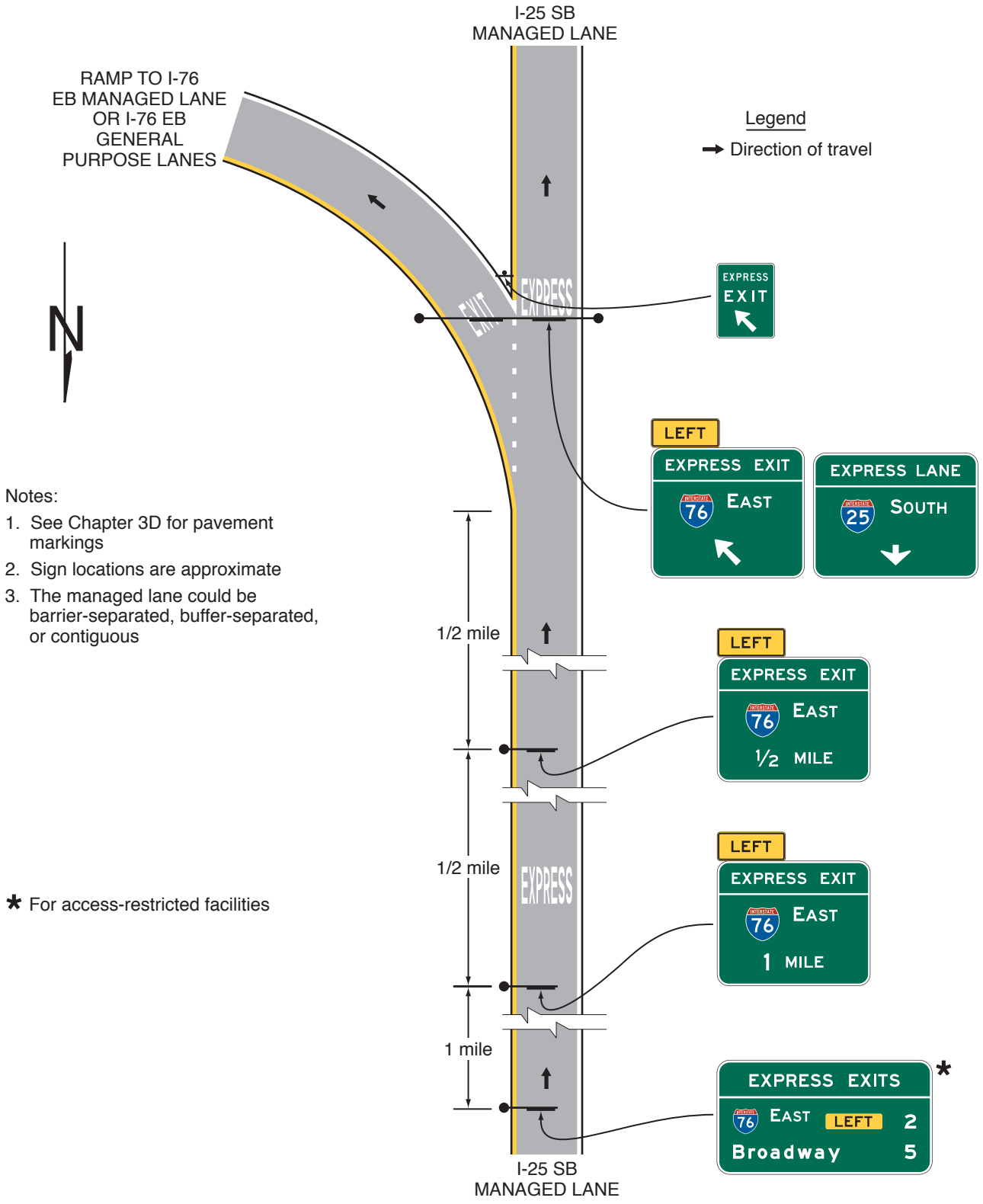


Figure 2G-29. Examples of Guide Signs for a Direct Access Ramp between Managed Lanes on Separate Freeways



Notes:

1. See Chapter 3D for pavement markings
2. Sign locations are approximate
3. The managed lane could be barrier-separated, buffer-separated, or contiguous

* For access-restricted facilities

Figure 2G-30. 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

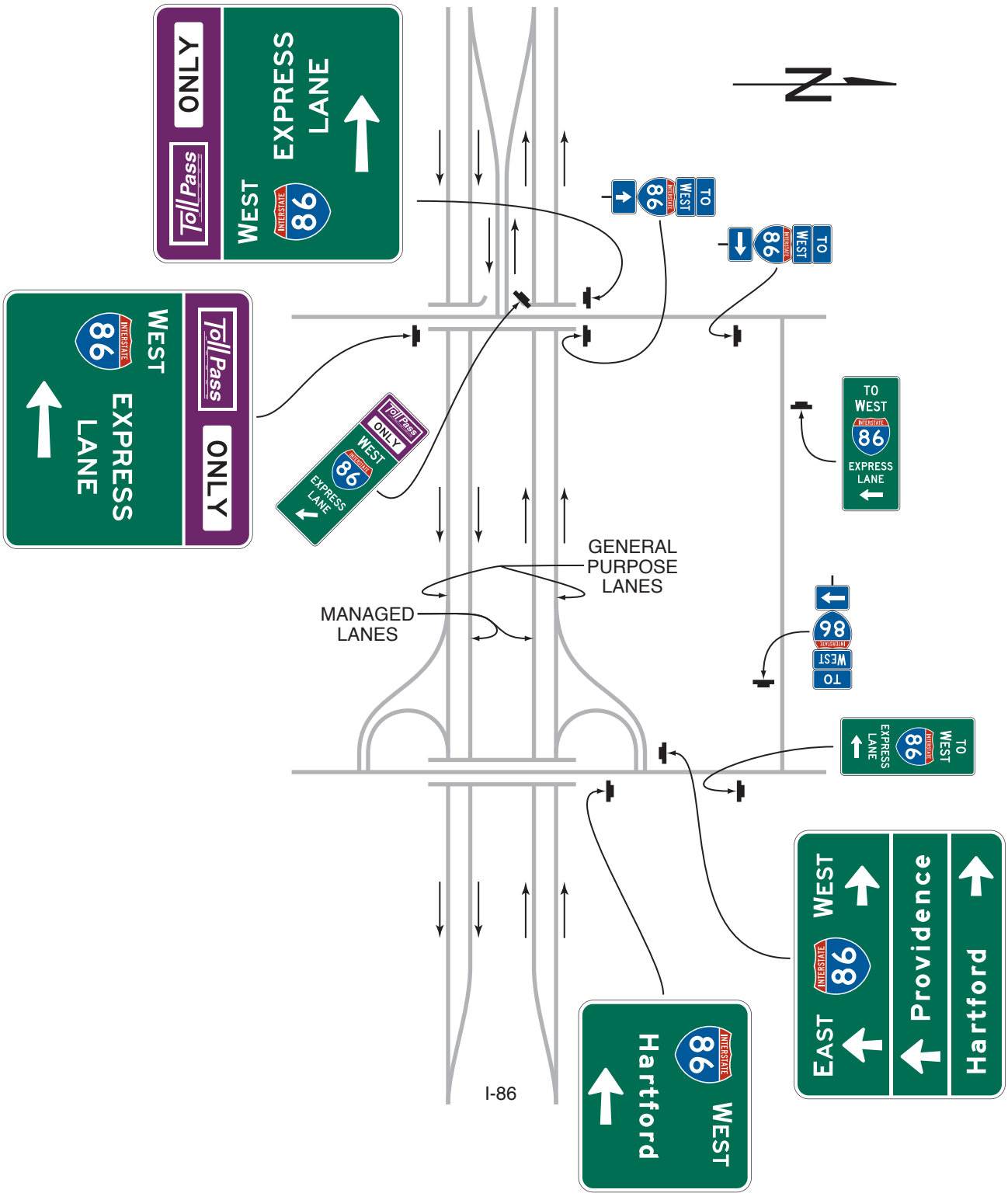


Figure 2G-31. Examples of Guide Signs for Separate Entrance Ramps to General-Purpose and Priced Managed Lanes from the Same Crossroad

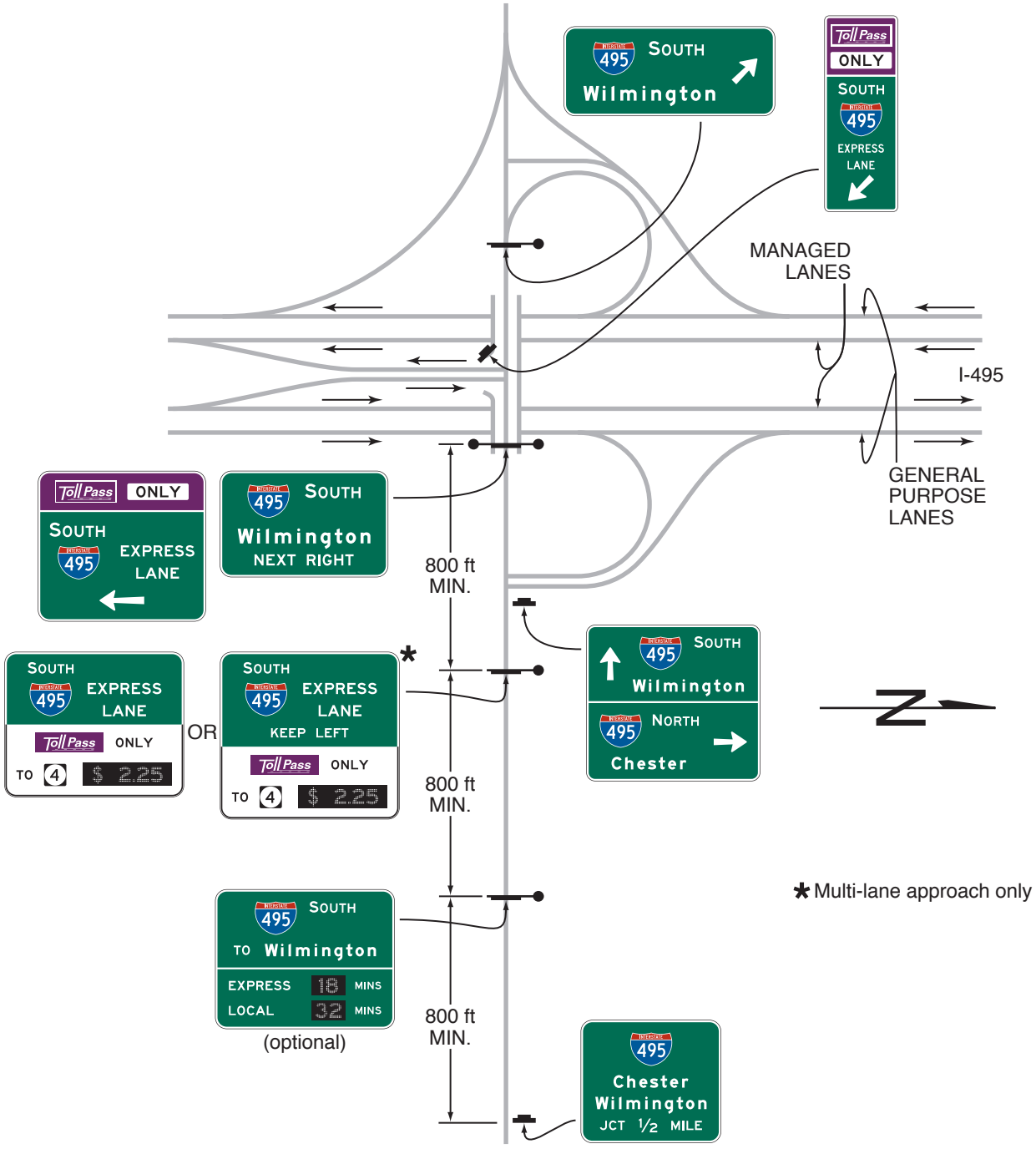
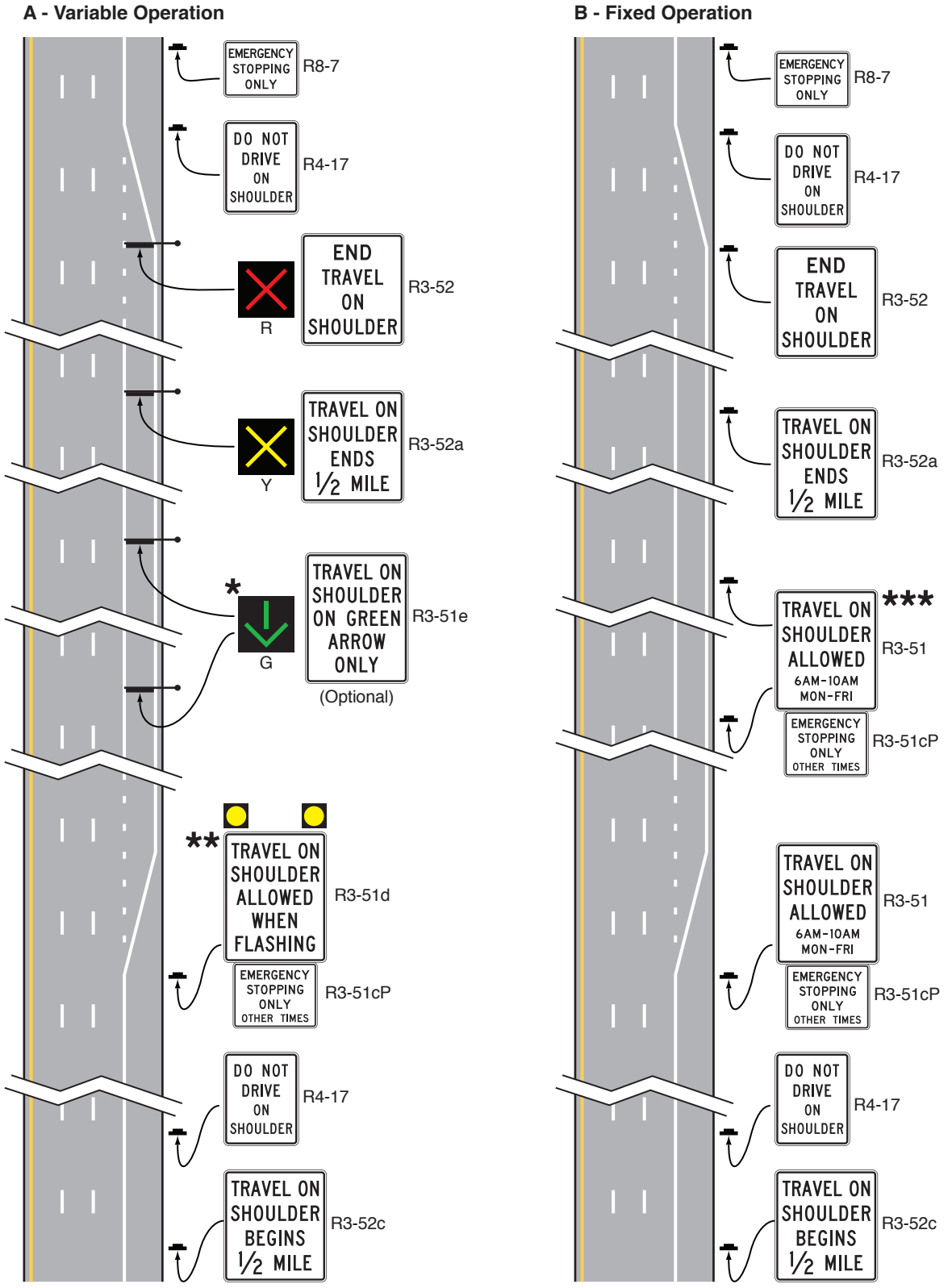


Figure 2G-32. Example of Signing for Part-Time Travel on a Shoulder (Sheet 1 of 4)



* Lane-use control signals (see Chapter 4T) located every 1/2 mile or less to reaffirm shoulder travel allowed (green arrow) or prohibited (Red X).

** A post mounted TRAVEL ON SHOULDER ALLOWED WHEN FLASHING sign (R3-51d) with beacons may be used lieu of lane-use control signals at the same intervals

*** The R3-51 sign located every 1/2 mile or less to affirm when travel on shoulder is allowed for fixed period applications.

Figure 2G-32. Example of Signing for Part-Time Travel on a Shoulder (Sheet 2 of 4)

C - Signing at Interchange Ramps

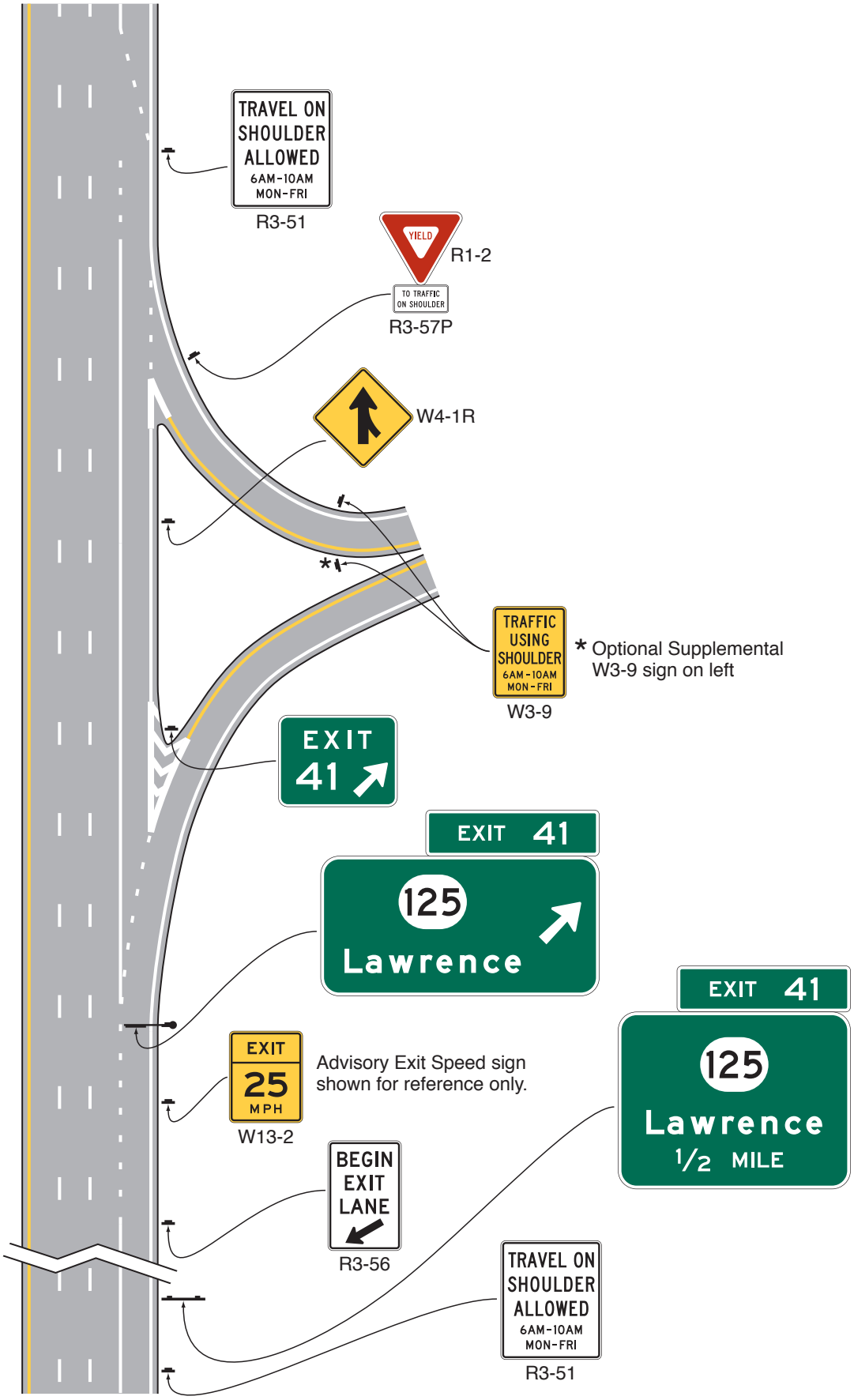


Figure 2G-32. Example of Signing for Part-Time Travel on a Shoulder (Sheet 3 of 4)

D - Emergency Turnout Signing for Travel on Shoulder Applications

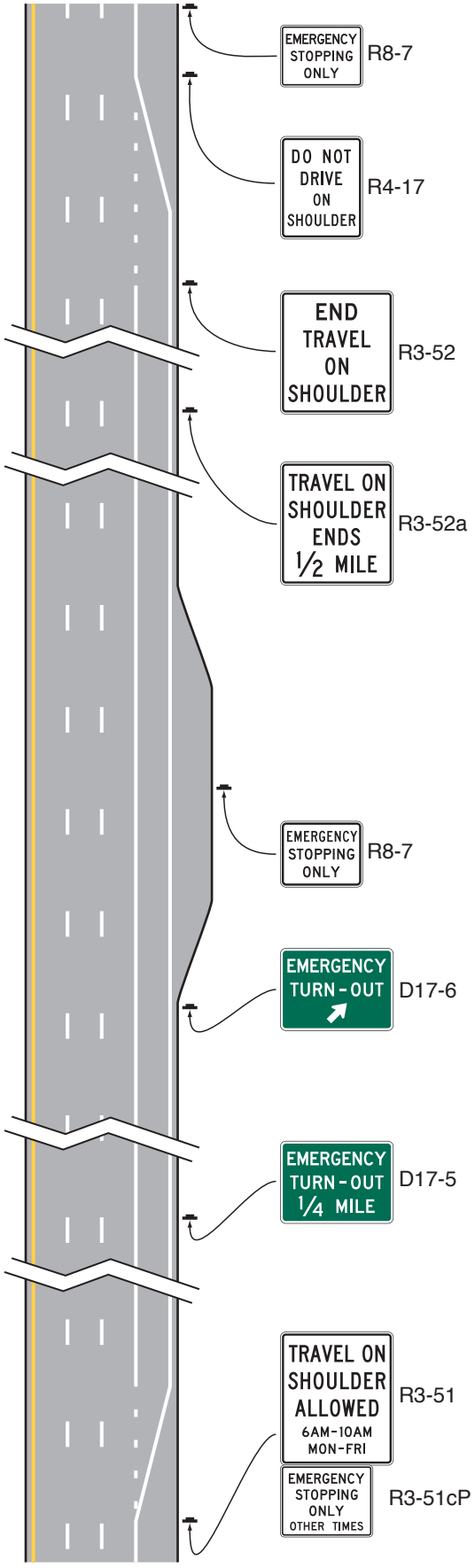


Figure 2G-32. Example of Signing for Part-Time Travel on a Shoulder (Sheet 4 of 4)

E - Travel on Shoulder Ends at an Interchange Exit Ramp

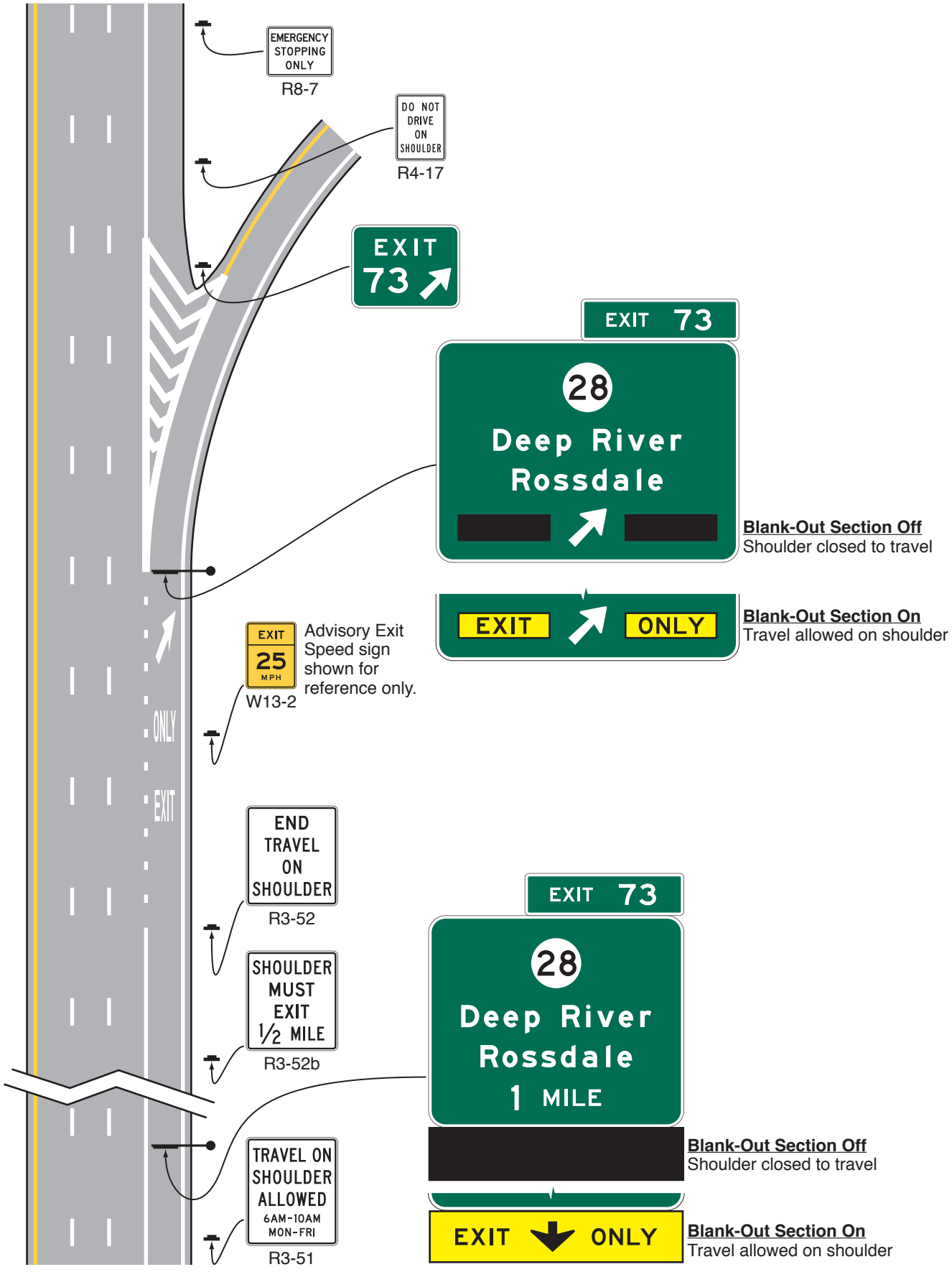


Figure 2G-33. Example of Lane-Use Control Signals and Variable Speed Limit Signs for Active Lane Management During an Incident