

E. GUIDE SIGNS—EXPRESSWAY

2E-1 Scope of Expressway Guide Sign Standards

Expressways are divided arterial highways for through traffic with partial control of access and generally with grade separations at major intersections. The standards prescribed herein shall apply to any expressway. Some of the material contained in this Section also applies to "Freeways" and it is so referenced in Part II-F.

2E-2 Application

Expressways call for an intermediate level of signing more advanced than that prescribed for Conventional Roads (Part II-D), but less demanding in their requirements and specifications than Freeway signing standards (Part II-F). Since there are many geometric design variables to be found in existing expressways, a signing concept commensurate with prevailing conditions must be the primary consideration. Whenever possible, expressway signing should be planned at the design stage.

2E-3 General Standards

Basically, expressway signs should be designed so that they are legible to drivers approaching them, and readable in time to permit proper responses. On arterials and facilities of expressway design, this usually means (a) high visibility, (b) large lettering and symbols, and (c) short legends for quick comprehension. Standard shapes and colors are required so that traffic signs can be promptly recognized.

Although the sections which follow deal specifically with expressway guide signs, it must be remembered that the dimensions of regulatory and warning signs will have to be suitably enlarged for the expressway traveler in consideration of multiple traffic lanes and higher operating speeds. Moreover, ground signs in these categories may have to be posted in the median as well as at the right-hand side of the roadway as traffic in the right-hand lane may obstruct the view to the right.

Reference should be made to Part II-A for pertinent data on sign shapes, sign borders, variable messages, overhead sign warrants, height and lateral clearance. Standard messages and symbols for regulatory and warning signs will also apply (Parts II-B and II-C). Sizes for regulatory and warning signs are given in the Standard Highway Signs booklet.*

*Available from the Federal Highway Administration (HTO-20), Washington, D.C. 20590

2E-4 Functions of Expressway Guide Signs

Guide signs on expressways serve distinct functions as follows:

1. Give directions to destinations, or to streets or highway routes, at intersections or interchanges.
2. Furnish advance notice of the approach to intersections or interchanges.
3. Direct drivers into appropriate lanes in advance of diverging or merging movements.
4. Identify routes, and directions on those routes.
5. Show distances to destinations.
6. Indicate access to general motorist services, rest, scenic, and recreational areas.
7. Provide other information of value to the driver.

2E-5 Color of Expressway Guide Signs

Guide signs on expressways except as noted herein shall have white letters, symbols, and borders on a green background. Color requirements for route markers and trailblazers, signs with blank-out or variable messages, signs for services, rest areas, park and recreational areas, and for certain miscellaneous signs are specified in the individual sections dealing with the particular sign or sign group. Specifications for standard highway sign colors are available.*

2E-6 Reflectorization or Illumination

Letters, numerals, symbols, and borders shall be reflectorized. The background of expressway guide signs may be reflectorized or nonreflectorized. However, the mixing of signs with reflectorized and nonreflectorized backgrounds in the same general area should be avoided.

In general, where there is no serious interference from extraneous light sources, reflectorized signs will usually be adequate. However, on expressways where much driving at night is done with low beam headlights, the amount of headlight illumination incident to an overhead sign display is relatively small. Therefore, all overhead sign installations should normally be illuminated. The type of illumination chosen should provide effective and reasonably uniform illumination of the sign face and message. When a sign is internally illuminated the requirement for reflectorized legend and borders does not apply.

2E-7 Size of Expressway Guide Signs

Sign size must be fixed primarily in terms of the length of the message and the size of the lettering necessary for proper legibility. On a given expressway it is desirable, for esthetic and economic reasons, to keep to a minimum number of sizes.

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Under some circumstances, particularly for overhead signs, the available space must be considered. A sign mounted over a particular roadway lane to which it applies may have to be limited in horizontal dimension to the width of the lane, so that another sign may be placed over an adjacent lane. The necessity to maintain proper vertical clearance may place a further limitation on the size of the overhead sign and the copy that can be accommodated.

2E-8 Number of Signs at an Overhead Installation

When overhead signs are warranted, as is set forth in section 2A-22, it is desirable to limit the number of signs at these locations to only those essential in communicating pertinent destination information to the motorist. Typically, exit direction signs for a single exit and the advance guide signs will only need one panel with one or two destinations.

At other overhead locations it may be necessary to erect more than one sign to advise of a multiple exit condition at an interchange. Possibly, due to complex or unusual geometries of the roadway, ramp, or crossing roadway, it may be necessary to provide additional panels with confirmatory messages to guide the motorist properly. However, it should be recognized that drivers have limited time to read and comprehend sign messages. In no case should there be more than three signs displayed at any one location; including regulatory or warning signs either on the overhead structure or its support.

The use of regulatory signs, such as speed limits, in conjunction with overhead guide sign installations, is not recommended.

2E-9 Amount of Legend on Expressway Guide Signs

Regardless of letter size, the legend on an expressway guide sign must be kept to a minimum. Two destinations and the directional copy are as much as most drivers can comprehend readily at high speed. For this reason, on any single major guide sign, not more than two destination names or street names ordinarily should be shown. A city name and street name on the same sign should be avoided. Directional copy, not exceeding three lines, may include symbols, route numbers, arrows, cardinal directions, and exit instructions. Where two or more signs are placed on the same supports, it is desirable to limit destinations or names to one per sign, or to a total of three in the display. Indiscriminate use of supplemental signs should be avoided (sec. 2E-28).

2E-10 Style of Lettering

The style of lettering to be used on expressway guide signs shall be one of the following two types provided in the Standard Alphabets for Highway Signs and Pavement Markings*

* Available from the Federal Highway Administration (HTO-20), Washington, D.C. 20590

1. Upper-case letters for all word legend; or
2. Lower-case letters with initial upper-case letters for all names of places, streets, and highways and upper-case letters for other word legend.

2E-11 Size of Lettering

Word messages in the legend of expressway guide signs shall be in letters at least 8 inches high. Larger lettering is necessary for major guide signs at or in advance of interchanges and for all overhead signs. Recommended numeral and letter sizes according to interchange classification, type of sign and component of sign legend are shown in table II-1. These sizes are to be regarded as minimums. Freeway lettering sizes (table II-2, page 2F-5) are considered applicable to expressways designed closely to freeway geometrics.

For use with lower-case letters, the initial upper-case letters shall be about 1½ times the "loop" height of the lower-case letters.

Lettering size on expressway signs is to be the same for both rural and urban conditions. Large easy-to-read copy is just as necessary on urban sections as on rural highways because of the more complex traffic pattern.

Table II-1 Letter and Numeral Sizes for Expressway Guide Signs

A. Advance Guide, Exit Direction, and Overhead Signs

	<i>Major*</i>				
	<i>Category (a)*</i>	<i>Category (b)*</i>	<i>Intermediate*</i>	<i>Minor*</i>	<i>Overhead</i>
<i>Exit Panel</i>					
Word	10"	10"	10"	8"	10"
Numeral	15"	15"	15"	12"	15"
Letter	15"	15"	15"	12"	15"
<i>Route Marker Interstate</i>					
Numeral	18"				18"
Shield					
(1-2 Digit).....	36" x 36"				36" x 36"
(3 Digit).....	45" x 36"				45" x 36"
<i>U.S. or State Marker</i>					
Numeral	18"	18"	18"	12"	18"
Shield					
(1-2 Digit).....	36" x 36"	36" x 36"	36" x 36"	24" x 24"	36" x 36"
(3 Digit).....	45" x 36"	45" x 36"	45" x 36"	30" x 24"	45" x 36"
<i>or Alternate (Ex: U.S. 56)</i>					
Initials	15"	12"	12"	10"	12"
Numeral	18"	15"	15"	12"	15"
<i>Cardinal Direction</i>					
Word	15"	12"	10"	8"	12"
<i>Name of Place, Street, or Highway</i>					
Word	20"/15"	16"/12"	13.3"/10"	10.6"/8"	16"/12"

TABLE II-1 Letter and Numeral Sizes for Expressway Guide Signs—Cont.

	Major*		Inter- mediate*	Minor*	Overhead
	Category (a)*	Category (b)*			
Distance					
Numeral	18"	15"	12"	10"	15"
Fraction	12"	10"	10"	8"	10"
Word	12"	10"	10"	8"	10"
Action Message					
Word	10"	10"	10"	8"	10"
*See Section 2E-23, Expressway Interchange Classification					
B. Gore Signs					
At major and intermediate interchanges					
Word					10"
Numeral & Letter					12"
At minor interchange					
Word					8"
Numeral & Letter					10"
C. Pull Thru Signs					
Destination Message					
Word					13.3"/10"
Route Marker as Message					
Cardinal Direction					10"
Route Marker					36"×36"
D. Supplemental Guide Signs					
Exit Number					
Word					8"
Numeral					12"
Letter					12"
Place name					10.6"/8"
Action message					8"
E. Variable Message Signs**					
Place name					10.6"/8"
Advisory Message					10.6"/8"
Action Message					
Word					8"
Numeral(s)					8"
**Variable message signs may often require larger legends or the use of all capital letters. The sizes shown here are minimum and larger sizes may be used depending on needs.					
F. Interchange Sequence Signs					
Word					10.6"/8"
Numeral					10"
Fraction					8"
G. "Next—Exits" Signs					
Place name					10.6"/8"
NEXT—EXITS					8"

TABLE II-1 Letter and Numeral Sizes for Expressway Guide Signs—Cont.

	Major*	Inter- mediate*	Minor*	Overhead
	Category (a)*	Category (b)*		
H. Distance Signs				
Word				8''/6''
Numeral				8''
I. General Services Signs				
Exit Number				
Word				8''
Number				12''
Letter				12''
Services				8''
J. Rest Area and Scenic Area Signs				
Word				10''
Distance				
Numeral				12''
Fraction				8''
Word				10''
Action Message				
Word				10''
K. Mileposts				
Word				4''
Numeral				10''
L. Boundary and Orientation Signs				
Word				8''/6''
M. "Next Exit" and "Next Services" Signs				
Word				8''
Numeral				8''
N. "Exit Only"				
Word				12''

Note: (/) Slanted bar signifies separation of upper-case and lower-case alphabets.

2E-12 Interline and Edge Spacing

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

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

2E-13 Abbreviations

Abbreviations are to be kept to a minimum; however, they are useful when complete destination messages produce signs excessively long.

When used, abbreviations should be unmistakably recognized by motorists. In the case of cardinal directions used with route markers on major guide signs, the words NORTH, SOUTH, EAST, and WEST are not to be abbreviated. Branch or divided routes are not desirable and not in keeping with AASHTO Policy on U.S. Numbered Highways. There should not be any use of a suffix letter as an integral part of the route designation.

2E-14 Symbols

Symbol designs should be essentially like those shown in this Manual. Educational plaques (word messages) may be used below symbol signs where needed. A special effort should be made to balance legend components for maximum legibility of the symbol with the rest of the sign legend.

2E-15 Arrows for Interchange Guide Signs

On all exit direction signs, both overhead and ground mounted, arrows shall be upward slanting and be located on the appropriate side of the sign.

Downward pointing arrows are lane assignment arrows and shall be used only for overhead guide signs to prescribe the use of specific lanes for traffic bound for a destination or route that can be reached only by being in the lane(s) so designated. These arrows may be tilted where it is desired to emphasize the separation of roadways.

Examples of arrows for use on guide signs are shown in figure 2-6 (page 2D-4). Detailed dimensions of arrows are provided in the appendix of the Standard Highway Signs booklet.*

2E-16 Viewing Factors

Proper placement of signs, either overhead or on the ground, can greatly enhance the effectiveness of an installation. Sign faces should always be oriented to minimize specular reflection. Decisions on the placement of signs, both ground-mounted and overhead, should be related to the site conditions. Where highway design features and other appurtenances are affected, sign placement should be jointly planned for best service and safety.

2E-17 Overhead Sign Installations

Overhead sign installations will have value at many locations on expressways. Specifications for the design and construction of structural supports for highway signs have now been standardized by the American Association of State Highway and Transportation Officials.**

* Available from the Federal Highway Administration (HTO-20) Washington, D.C. 20590

** Available from the American Association of State Highway and Transportation Officials, Washington, D.C. 20004.

Factors justifying the erection of overhead signs are enumerated in section 2A-22.

Overcrossing structures can often serve for the support of overhead signs, and may be the only practical location that will provide adequate viewing distance. Use of these structures as sign supports will eliminate the need for sign supports along the roadside. Where overhead crossings are closely spaced, it is desirable to place signs on the bridges to enhance safety and economy. Butterfly-type signs, and other overhead sign supports shall not be erected in gores or other exposed locations in new signing projects.

2E-18 Urban Expressways

Urban expressways are characterized not so much by city limits or other boundary lines, but by factors such as high traffic volumes, lower operating speeds, closely-spaced interchanges, and roadway lighting.

Operating conditions and road geometrics on urban expressways usually require special sign treatment. This involves the following considerations:

1. Use of Interchange Sequence signs (sec. 2E-34).
2. Use of sign spreading to the maximum extent possible (sec. 2E-31).
3. Elimination of service signing (sec. 2E-37).
4. Reduction to a minimum of post interchange signs (sec. 2E-32).
5. Display of advance signs at distances closer to the interchange, with appropriate adjustment in the legend (sec. 2E-26).
6. Use of overhead signs on roadway structures and independent sign supports (sec. 2E-17).
7. Use of diagrammatic signs in advance of intersections and interchanges (sec. 2F-24).

2E-19 Expressway Guide Sign Classification

Expressway guide signs are classified and treated in the following categories:

1. Route markers and trailblazers (sec. 2E-20).
2. Intersection signs (sec. 2E-21).
3. Interchange signs (secs. 2E-24 to 2E-33).
4. Interchange sequence series signs (sec. 2E-34).
5. Community Interchanges Identification sign (sec. 2E-35).
6. Next (X) exits area signs (sec. 2E-36).
7. General Services signs (sec. 2E-37).
8. Rest area and scenic area signs (sec. 2E-38).
9. Recreational and cultural interest area signs (sec. 2E-39).
10. Milepost markers (sec. 2E-40).
11. Miscellaneous guide signs (sec. 2E-42).

2E-20 Route Markers and Trailblazers

Route markers on expressways ordinarily are incorporated as shields or other distinctive shapes in large directional guide signs. Independently mounted route markers may be used in lieu of Pull Thru signs as confirmation information (sec. 2E-32). These markers should be located just beyond the exit.

Route markers and auxiliary markers showing junctions and turns should be used for guidance on approach roads, for route confirmation just beyond entrances and exits, and for reassurance along the expressway. Where used along the expressway, the markers should be suitably enlarged. Dimensional data for route marker shields is given in the Standard Highway Signs booklet.*

The standard Trailblazer assembly (sec. 2D-33) has application on roads leading to the expressway. Component parts of the Trailblazer assembly may be included on a single sign panel.

2E-21 Signs for Intersections at Grade

Wherever there are intersections at grade within the limits of an expressway, sign types specified in Part II-D will be applicable. However, such signs should be of a size compatible with the level of other signing on the expressway. Advance guide signs for intersections at grade may take the form of diagrammatic layouts depicting the geometrics of the intersection along with essential directional information. Guidelines for design of diagrammatic signs are contained in sec. 2F-24.

2E-22 Uniform Signing by Type of Interchange

Signing should be consistent for each type of interchange to help motorists identify the geometric layout, as well as to obtain route, direction and destination information for specific exit ramps. Where unusual geometric features exist, sign modifications may be justified, but should be held to a minimum to preserve a pattern of uniformity and expectancy. Figures 2-27 through 2-42 (pages 2F-15 to 2F-33) show applications of guide signs for common types of interchanges.

2E-23 Expressway Interchange Classification

For expressway signing purposes interchanges are classed as major, intermediate and minor.

1. Major interchanges are subdivided into two categories:
 - (a) Interchanges with other expressways or freeways.
 - (b) Interchanges, other than those named in (a), with high-volume multilane highways, principal urban arterials, and major rural routes where the interchanging traffic is heavy or includes many drivers unfamiliar with the area.

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2. Intermediate interchanges are those with urban and rural routes not in the category of major or minor interchanges, as defined herein.

3. Minor interchanges include those where traffic is local and very light, such as the interchanges with land service access roads. Where the sum of exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classed as minor.

2E-24 Interchange and Exit Numbering

The feasibility of numbering interchanges or exits on an expressway will depend largely on the extent to which grade separations are provided. Where there is appreciable continuity of interchange facilities, interrupted only by an occasional intersection at grade, the numbering will be helpful to the expressway traveler.

Where used, the interchange numbering systems shall conform to the provisions prescribed for freeways (sec. 2F-19). The exit number legend, if used, shall be white letters and numerals (table II-1) on a green background and shall appear on interchange guide signs as hereinafter described in sections 2E-25 through 2E-32 and as shown in figures 2-9, 2-13, and 2-14, (pages 2E-11, 2E-15 and 2E-16).

2E-25 Interchange Guide Signs

Interchange guide signs, in proper sequence, combine the functions of separate Route Marker and Destination signs, previously described in Part II-D, to give all necessary navigation information through interchanges. Guide signs placed in advance of an interchange deceleration lane should be spaced at least 800 feet apart. Sections 2E-26 through 2E-35 describe, in order, the signs that should appear at the approach to, at, and beyond each interchange.

When interchange sequence series signs (sec. 2E-34) are used it is preferable to use them over the entire length of a route in an urban area. They should not be used on a single interchange basis.

2E-26 Advance Guide Signs (fig. 2-9)

The advance guide sign gives notice well in advance of the exit point of the principal destinations served by the next interchange and the distance to that interchange. Where there is less than 800 feet between interchanges, interchange sequence series signs should be used in lieu of the advance guide sign for the affected interchanges. The minimum distance could be reduced, where necessary, to 650 feet because of lower operating speeds.

For major and intermediate interchanges, two and preferably three advance guide signs should be used. The recommended location for their placement is one-half, one and two miles in advance of the exit. However, where this is not practicable the distance shown should be to the nearest $\frac{1}{4}$ mile. Fractions of a mile, rather than decimals, should be

shown in all cases. The legend on the sign shall be the same as on the Exit Direction sign except that the last line shall read EXIT 1 MILE or EXIT 2 MILES as the case may be. If the interchange has two or more exit roadways, the bottom line shall read EXITS 1 (2) MILE(S). However, where interchange exit numbers are used, the word EXIT may be omitted from the bottom line. Where the distance between interchanges is more than 1 mile, but less than 2 miles, the first advance guide sign may be closer than 2 miles, but not placed so as to overlap the signing for the previous exit.

At minor interchanges, only one advance guide sign is required. It should be located $\frac{1}{4}$ to $\frac{1}{2}$ mile from the exit gore.

Where advance guide signs are for a left exit, diagrammatic signs should be used. When used, they shall conform to section 2F-24.

Duplicate advance guide signs or interchange sequence series signs may be placed on the opposite side of the roadway and are not included in the minimum requirements of interchange signing.

Recommended letter and numeral sizes for advance guide signs are shown in table II-1 (page 2E-4).



Figure 2-9. Typical interchange advance guide signs.

2E-27 Next Exit Supplemental Sign (fig. 2-10)

Where the distance to the next interchange is such that a driver failing to make a desired turn would be required to travel a number of miles out of his way, it may be desirable to use a supplementary panel mounted below the advance guide sign nearest the interchange. This will carry the legend NEXT EXIT (12) MILES. Where this sign is used, it shall be placed below the guide sign nearest the interchange. Normally, the Next Exit sign should not be used unless the distance between successive interchanges is more than 5 miles.

The legend for the Next Exit sign may be displayed in either one or two lines. The one-line message is the more desirable choice unless the message causes the sign to have a horizontal dimension greater than that of the advance guide sign.

When this sign is used and mounted below the advance guide sign, the breakaway feature shall not be adversely affected by the mounting. For example, a sign should be placed above the "hinge point" on one type of sign support. In any case, the sign(s) should be located above the yielding point of the support post.



E2-1



E2-1A

Figure 2-10. Next exit supplemental advance guide sign.

2E-28 Other Supplemental Signs (figs. 2-11, 12)

Information regarding destinations accessible from an interchange, other than places shown on the standard interchange signing, may be shown on a supplemental guide sign. Such a sign may list one or two

destinations followed by the interchange number (and suffix) or if interchanges are not numbered, by the legend NEXT RIGHT or SECOND RIGHT or both, as appropriate. The supplemental guide sign installation should be erected approximately mid-way between the two major advance guide signs. If only one advance guide sign is used, the supplemental sign should follow by at least 800 feet.

Supplemental signing can reduce the effectiveness of other more important guide signing because of the possibility of overloading the vehicle operator's capacity to receive and make decisions on visual messages. States may develop an appropriate policy for such signing. Such items as population, traffic generated and distance from the expressway route and the significance of the destination should be taken into account.

II-76(c)
Rev. 4

Only one supplemental guide sign may be used on each interchange approach. If used, it is normally installed as an independent guide assembly.

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Rev. 4



Figure 2-11. Other supplemental advance guide signs.

Guide signs directing motorists to park and ride facilities shall be considered as supplemental signs. Figure 2-12 shows a typical sign. If the

interchanges are numbered, the interchange number should be used for the action message (fig. 2-26, sec. 2F-20). Section 2D-41 contains information on the use of local transit logos and the carpool symbol.



Figure 2-12. Guide sign to park & ride facility. (Expressway)

2E-29 Exit Direction Signs (fig. 2-13)

The exit direction sign repeats the route and destination information that was shown on the advance guide sign(s) for the next exit, and thereby assures the driver of the destination served and indicates whether he leaves on the right or on the left for that destination.

Exit direction signs are required at major and intermediate interchanges and should be used at minor interchanges. Such signs are usually ground mounted at the beginning of the deceleration lane. If there is less than 300 feet from beginning of deceleration lane to the theoretical gore (fig. 3-11, page 3B-15), the exit direction sign should be erected overhead over the exiting lane in the vicinity of the theoretical gore.

Other reasons to consider using overhead exit direction signs are contained in section 2A-22. Where a through lane is being terminated at an exit (a "lane drop") the exit direction sign shall be placed overhead at the theoretical gore.

In some cases, principally in urban areas, restricted sight distance due to structures or unusual alignment may make it impossible to locate the exit direction sign without violating the required minimum spacing between major guide signs. In such circumstances, interchange sequence series signs may be substituted for an advance guide sign, but shall not be substituted for the exit direction sign.

The following provisions govern the design and application of the overhead exit direction sign:

1. The sign shall carry the exit number (if used), the route number, cardinal direction and destination with an appropriate upward slanting arrow (figure 2-13).

2. At multi-exit interchanges the sign should be located directly over the exiting lane for the first exit. At the same location and normally over the right-hand through lane, an advance guide sign for the second exit should be located. Only for those conditions where the through movement is not evident should a confirmatory message (Pull Thru sign, fig. 2-15) be used over the left lane(s) to guide motorists travelling through an interchange. Pull Thru signs shall not otherwise be used. In the interest of sign spreading, three signs on one structure is not recommended.

3. Overhead exit direction signs may also be used effectively at the second exit. If the second exit is beyond an underpass, the sign should ordinarily be mounted on the face of the overhead structure. When the expressway is on an overpass, the exit direction sign should be on a cantilever support over the exit lane in advance of the gore point.

4. The message "EXIT ONLY" in black on a yellow panel shall be used on the overhead exit direction sign to advise drivers of a lane drop situation. The sign shall conform to the provisions of section 2F-25.

Diagrammatic signs shall not be employed at the exit direction location. Letter and numeral sizes are presented in table II-1 (page 2E-4) and arrow dimensions are presented in the appendix of the Standard Highway Signs booklet.*



Figure 2-13. Interchange exit direction signs.

2E-30 Gore Signs (fig. 2-14)

The gore sign indicates the place of departure from the main-line roadway. Therefore, consistent application of this type of sign according to design conditions is of much importance. The basic need is for a sign

* Available from the Federal Highway Administration (HTO-20) Washington, D.C. 20590

to indicate the exiting point. Each gore should be treated similarly, whether the interchange has one exit roadway or multiple exits.

The gore sign shall be located in the area between the main roadway and the ramp at all exits. The sign shall carry the word EXIT with a number (if interchange numbering is used) and an appropriate upward slanting arrow. The arrow should be aligned to approximate the angle of departure. Breakaway or yielding supports shall be used where they are vulnerable to vehicles out of control.



Figure 2-14. Gore signs.

2E-31 Sign Spreading and Pull Thru Signs (figs. 2-15, 2-16)

Sign spreading is a concept where major overhead guide signs are so spaced that motorists are not overloaded with a group of signs at one location. Where overhead signing is used, sign spreading should be used at all single exit interchanges and to the extent possible at multi-exit interchanges.



Figure 2-15. Pull-thru signs.

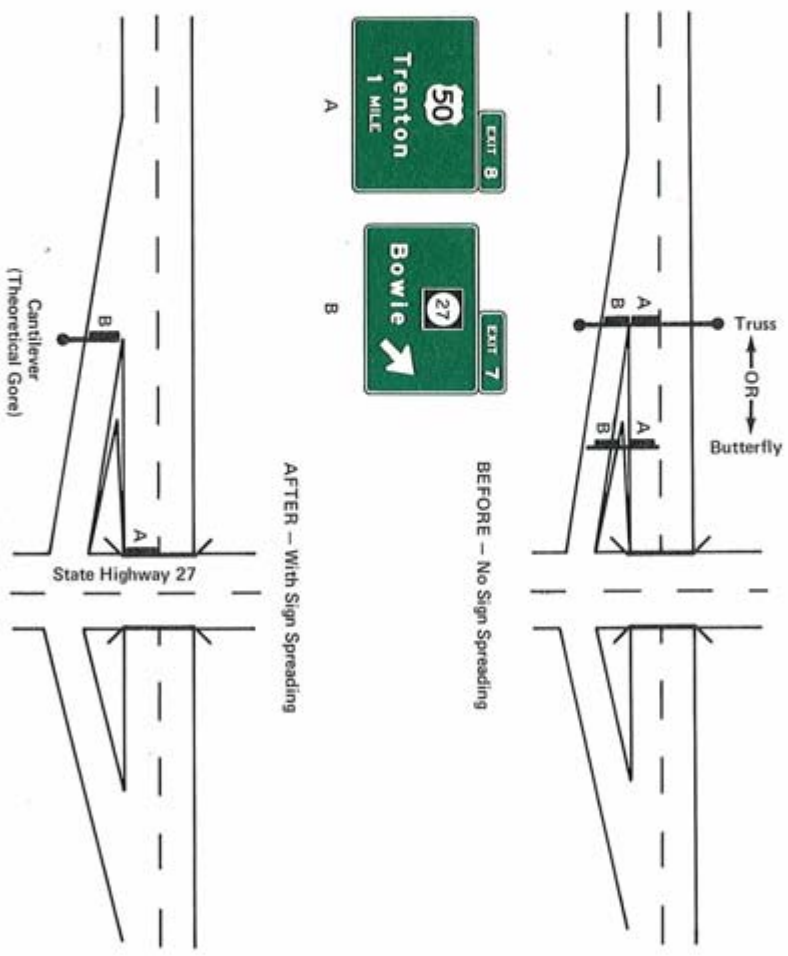


Figure 2-16. Spreading of guide sign information (Navigational information).

Sign spreading is accomplished as follows:

1. The exit direction sign is the only sign used in the vicinity of the gore. It is located overhead near the theoretical gore and generally on a cantilever.

2. The advance guide sign for the next interchange exit should be placed on the interchange overcrossing structure when the crossroad goes over. If the mainline goes over the crossroad the sign should be placed on a cantilever or it may be ground mounted, and should be located behind the guardrail leading to the bridge rail.

3. Pull Thru signs are eliminated when sign spreading is applied. (See fig. 2-16 for sign spreading.) Pull Thru signs should be used only when the geometrics of a given interchange are such that it is not clear to the driver as to which is the through roadway. Pull Thru signs with down arrows, as illustrated in figure 2-27, (page 2F-15) should be used when the alignment and number of through lanes is not readily evident.

2E-32 Post-Interchange Signs

Where space between interchanges permits, as in rural areas and where undue repetition of messages will not occur, a fixed sequence of signs should be displayed beginning 500 feet beyond the end of the acceleration lane. At this point there should be a route marker assembly, followed 1,000 feet farther along by a speed limit sign, and this followed in another 1,000 feet by a distance sign.

Where space between interchanges does not permit placement of these three post-interchange signs without encroaching on or overlapping the advance guide signs necessary for the next interchange, or in rural areas where the interchanging traffic is primarily local, one or more of the post-interchange signs should be omitted. Usually the distance sign will be of less importance than the other two signs and can, therefore, be omitted especially where interchange sequence signs are used. If the sign for through traffic on an overhead assembly already contains the route marker, the post-interchange route marker assembly may also be omitted.

2E-33 Distance Signs (fig. 2-17)

Where used, the post-interchange distance sign shall consist of a two- or three-line sign carrying the names of significant destination points and the distances to those points. Destination points should be selected and arranged as follows:

1. The top line of the sign shall identify the next meaningful interchange with the name of the community near or through which the expressway route passes, or if there is no community, the route number or name of the intersected highway.

2. A second line may be used on the sign, and when used, should be reserved for communities of general interest which are on or immediately adjacent to the route or major traffic generators that the route was specifically located to serve. The choice of names for the second line, when it is used, can be varied on successive distance signs to give motorists maximum information concerning communities served by the expressway.

3. The third, or bottom line, shall contain the name and distance to a control city (if any) which has national significance for travelers using the expressway route.

Under normal conditions, distances to the same destinations should not be shown more frequently than at five-mile intervals. The distances displayed on these signs should be the actual distance to the destination points and not to the exit from the expressway.



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Figure 2-17. Post interchange distance sign.

2E-34 Interchange Sequence Series Signs (fig. 2-18)

Where interchanges are so closely spaced, particularly through large urban areas, that major guide signs cannot be adequately spaced, interchange sequence series signs identifying the next two or three interchanges may be used. Interchange sequence series signs are generally supplemental to advance guide signs. However, where there is less than 800 feet between interchanges, such signs should be used in lieu of the advance guide signs for the affected interchanges. Interchange sequence series signs shall not be substituted for exit direction signs.

When such signs are used, it is preferable to use them over the entire length of a route in an urban area. They should not be used on a single interchange basis. Signing of this type is illustrated in figures 2-18 and 2-41, (page 2F-32) and is compatible with the sign spreading concept.

These signs display the next two or three interchanges by name or route number with distances to the nearest $\frac{1}{4}$ mile. Interchange numbers may be shown to the left of the interchange name or route number. When used, the first sign in the series shall be located in advance of the first advance guide sign for the first interchange. Thereafter, the signs should be placed approximately midway between interchanges. The signs shall be mounted at overhead height preferably in the median.

Santa Barbara Ave	$\frac{3}{4}$
Vernon Ave	$1\frac{1}{2}$
51 st Street	$2\frac{1}{4}$

Figure 2-18. E8-1

Where appropriate, interchange names or route numbers shown on such signs may be followed by the legend LEFT or LEFT EXIT in black letters on a yellow rectangular background where the exit direction is to the left. Separate panels may be attached to the sign panels for this purpose.

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2E-35 Community Interchanges Identification Sign (E8-2, fig. 2-19)

For suburban or rural communities served by two or three interchanges, community interchange identification signs are useful. In these cases the name of the community followed by the word "Exits" should be shown on the top line; the destination, state (road) name or route number, and the corresponding distances to the nearest $\frac{1}{4}$ mile should be shown below.

Columbia Exits	
College St	$1\frac{1}{2}$
Hanover St	$2\frac{1}{4}$
High St	$2\frac{3}{4}$

Figure 2-19. E8-2

The sign should be located in advance of the first advance guide sign for the first interchange within the community. If interchanges are not conveniently identifiable or if there are more than three interchanges as to be identified, the Next (X) Exits Area sign (E9) may be used.

2E-36 Next (X) Exits Area Sign (fig. 2-20)

Expressways may pass through "historical" or "recreational" regions, or urban areas served by a succession of several interchanges. Such regions or areas may be indicated by a special sign located in advance of the advance guide sign or signs for the first interchange. The sign legend should identify the region or area followed by the words NEXT (X) EXITS.



E9

Figure 2-20. Next (x) exits area sign.

2E-37 Signing for General Motorist Services (fig. 2-21)

On rural sections of expressways where general motorist services are infrequent, service signing may be needed. In such cases, the provisions of section 2D-46 will apply, except that signs should be suitably enlarged. Letter and numeral sizes are shown in table II-1 (page 2E-4). Approved symbols may be used as an alternate to word messages whenever motorist service signs are used but intermixing of symbols and word legends shall not be permitted.

The interchange exit number may be displayed atop the main panel (see fig. 2-43, page 2F-35). The action message line may then show the distance to the exit.

II-1(c)
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Figure 2-21. Signing for General Motorist Services.

2E-38 Rest and Scenic Areas

Signing for safety rest areas and for scenic areas should conform to the provisions previously set forth in sections 2D-42 and 2D-43. However, the signs should be suitably enlarged for expressway application. To provide the motorist with information on the location of succeeding rest areas a sign with the word message NEXT REST AREA XX MILES may be installed independently or as a supplemental panel mounted below one of the advance rest area guide signs. The sign or panel shall have reflectorized white letters and border on a blue background. Letter and numeral sizes are shown in Table II-1 (page 2E-4).

II-1(c)
Rev. 4

II-36 (c)
Rev. 2

2E-39 Recreational and Cultural Interest Area Signs

Recreational and cultural interest area signs of the type described previously in section 2D-44 may have application on expressway facilities. Where such signs are used, the provisions of the section should be followed with suitable enlargement of the signs for expressway conditions.

2E-40 Milepost Markers

Milepost markers will be required on expressway facilities which are located on a route where there is milepost continuity. In such cases, the provisions of section 2F-39 will apply.

2E-41 Wrong-Way Traffic Control (figs. 2-22a and 2-22b)

To help prevent wrong-way usage, efforts shall be made to identify and correct highway ramp terminals.

On interchange exit ramps where the ramp intersects a crossroad in such a manner that wrong-way entry could be made:

1. ONE-WAY signs shall be placed where the exit ramp intersects the crossroad. Turn prohibition signs may be placed, especially on two-lane rural crossroads, appropriately in advance of the ramp intersection to supplement the ONE-WAY sign.

2. DO NOT ENTER signs shall be conspicuously placed near the end of the exit ramp in positions appropriate for full view of a driver starting to enter wrongly.

3. At least one WRONG-WAY sign shall be placed on the exit ramp. Additional WRONG-WAY signs may be used where the ramp geometrics justify their installations.

4. On two-lane paved crossroads at interchanges, double solid yellow lines should be used as a centerline for an adequate distance on both sides approaching the ramp intersections.

5. In each lane at an exit ramp, one or more pavement marking arrows should be placed near the crossroad terminal to supplement wrong way signing at locations where wrong way usage occurs or there is the likelihood of wrong way movement. These markings, which should be clearly in sight of a wrong way driver, may consist of traffic paint, thermoplastic material, bi-directional red and white raised pavement markers, or other units that show red to wrong way drivers and white to other drivers.

III-16 (c)

6. Symbol arrow pavement markings may be placed on the crossroad at appropriate locations near the ramp junction to indicate the permissive direction of flow.

7. Guide signs may be used on entrance ramps near the crossroad to inform drivers of the correct "Freeway Entrance."

On interchange entrance ramps where the ramp merges with the through roadway:

1. Where the design of an interchange does not clearly make evident the direction of traffic on the separate roadways or ramps, a ONE-WAY sign visible to traffic on the entrance ramp and through roadway should be placed on each side of the through roadway opposite to the entrance ramp. A No Left Turn sign also may be placed along the right-hand side of the ramp just in advance of the entrance ramp terminal.

2. Arrow pavement markings may be placed at appropriate locations on the entrance ramp and major road through lanes to indicate the permissive direction of traffic flow.

At locations which are determined to have a special need, other standard warning or prohibitive methods and devices may be used as a deterrent to the wrong-way movement.

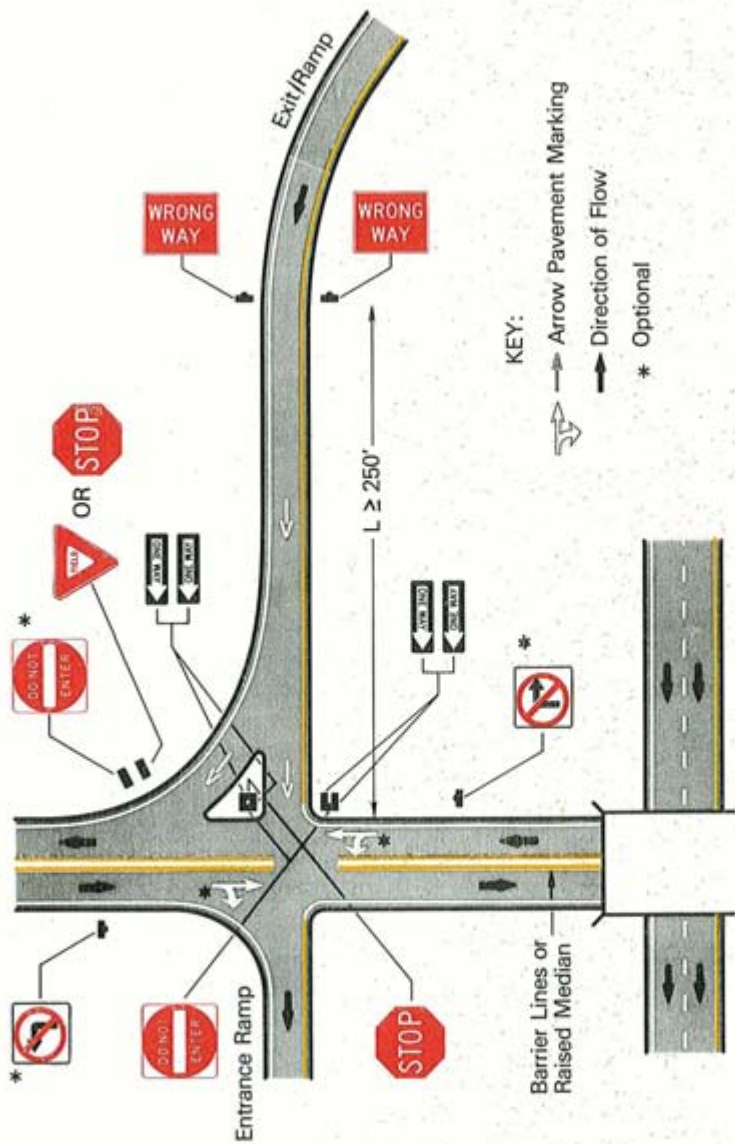


Figure 2-22a. Regulatory signing, delineation and arrow markings at exit ramp terminals to deter wrong-way entry (Modify as appropriate for 4-lane crossroads)

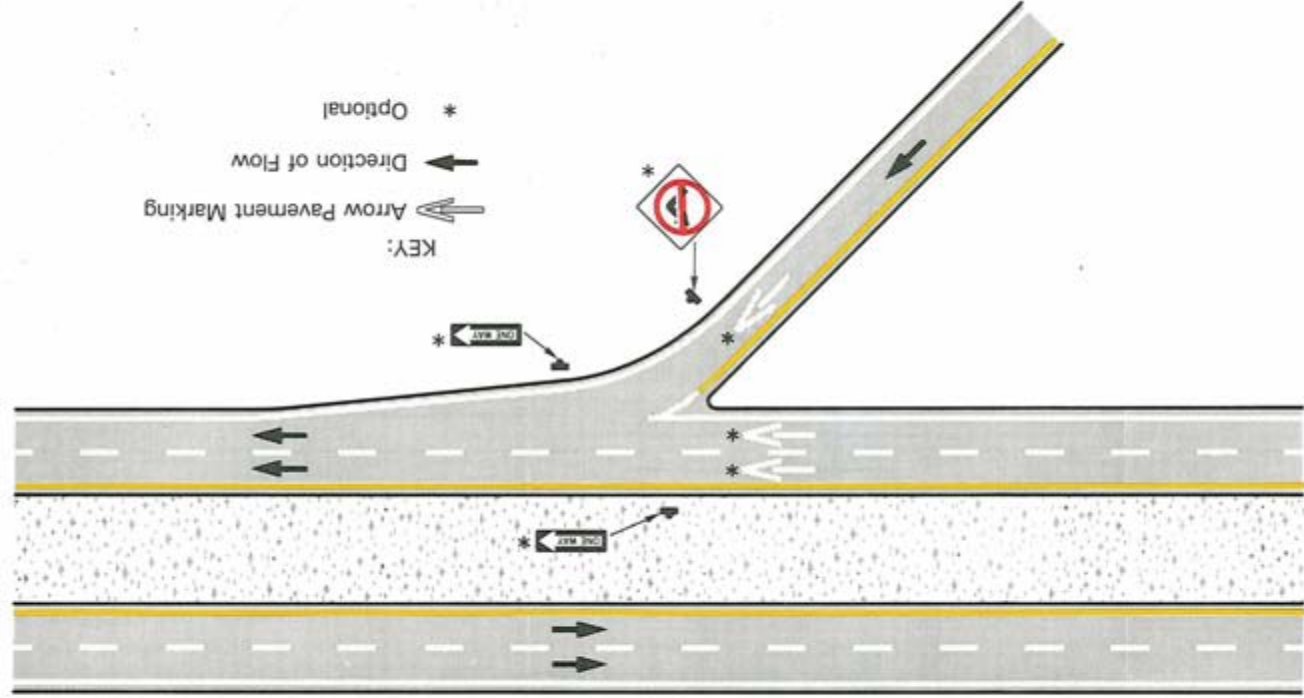


Figure 2-22b. Regulatory signing and arrow markings at entrance ramp terminals where design does not clearly indicate the direction of flow

2E-42 Miscellaneous Guide Signs

Miscellaneous guide signs, such as those pointing out geographical features like rivers, summits, and political boundaries (sec. 2D-49) may be used on expressways if they do not interfere with signing for interchanges or other critical points. If they are to be of value to the expressway traveler they should be consistent with other expressway signs in design and legibility.

2E-43 Weigh Station Signing

Where Weigh Station signing is applicable on an expressway route the provisions of section 2D-45 should be followed except that the distance to the exit direction sign should be 1500 feet minimum. Sign sizes and legend for expressways are contained in the Standard Highway Signs booklet.*

2E-44 Special Signing on Expressway Approaches and Connecting Roadways

The identification of entrances to expressways from roads of lesser importance should be given adequate attention. Conventional signing on the approach roads, as prescribed in Part II-D, may in some cases be ineffective for some of the more critical interchanges. Under such conditions the expressway signing standards may have to be extended to the approach roads.

Signing for frontage roads need not be to the same standard as is used on the through traffic roadways of the expressway, but otherwise should be consistent with requirements for roadways of this class. Good judgment and careful attention to details of such signs and their locations must be exercised in the vicinity of ramp terminals to avoid giving drivers confusing or conflicting information, or creating sight obstructions.

* Available from the Federal Highway Administration (HTO-20), Washington, D.C. 20590