

F. GUIDE SIGNS—FREEWAYS

Section 2F-1 Scope of Freeway Sign Standards

Standards for guide signs prescribed herein shall apply to any freeway. These standards, with the exception of certain markers reserved exclusively for the Interstate Highway System provide a uniform and effective system of highway signing that will be fully adequate for high-volume, high-speed motor vehicle traffic on all modern freeways.

Toll road authorities are required to comply with the standards defined herein.

Where appropriate, to reduce redundancy, reference is made to other applicable sections of Part II for selected standards for freeway signing.

2F-2 Freeway Signing Principles

The development of a signing system for freeways must be approached on the premise that the signing is primarily for the benefit and direction of drivers who are not familiar with the route or area. The signing must furnish drivers with clear instructions for orderly progress to their destinations.

Sign installations are an integral part of the freeway facility and, as such, must be planned concurrently with the development of highway location and geometric design. Plans for signing must be analyzed during the earliest stages of preliminary design and details correlated as final design is developed.

Interstate routes are not to be signed as memorial highways. This provision does not prohibit the erection and maintenance of memorial plaques indicating the highway is, for instance, a Blue Star Memorial Highway, if such plaques are placed in rest and recreational areas within or adjacent to the right-of-way of Interstate highways which have been designated as a memorial highway by State law or by official administrative action by the State highway department.

The naming of a bridge or highway on the Interstate System to recognize an individual or group of individuals is not to be recognized as a part of the official signing of the Interstate Highway System.

Under no conditions shall an Interstate route, that is officially designated as a memorial highway by State legislative or State highway administrative action, have signs erected along the route carrying the memorial name of the highway.

Except where they interfere with signing for interchanges or other equally critical points, miscellaneous guide signs of various types may

be used to show State, county and other significant local jurisdictional boundaries. Signs of this character should not be installed unless there are specific reasons for orienting the users of the freeway or identifying control points for activities that are clearly to the public interest.

On all such signs the design should be simple and dignified, devoid of any tendency toward flamboyant advertising and in general conformance with other freeway signing.

2F-3 General Characteristics of Freeway Signing

Freeway signing should always be considered and developed as a planned system of installations. Engineering study will be necessary for proper solution of the problems of many individual locations, but, in addition, consideration of an entire route is necessary. The excessive signing found on many major highways usually is the result of using a multitude of signs too small and poorly designed and placed to accomplish the purpose intended.

Drivers should be confronted with consistent signing on the approaches to interchanges, as they drive from one State to another, and when driving through rural or urban areas. Geographical, geometric, and operating factors regularly create significant differences between urban and rural freeway conditions, and the signing must take these into account.

The standards prescribed for sign letter size on freeways are the same for both urban and rural areas. Space is often at a premium on urban sections, but the typical traffic pattern is also more complex for the driver to negotiate, and large easy-to-read copy is, therefore, just as necessary as on rural highways. The lower speeds characteristic of urban operation may well support consideration of different highway geometrics in design, but do not justify different sign standards.

2F-4 Characteristics of Urban Freeway Signing

The distinctive characteristics of freeway interchange signing for urban conditions are outlined in section 2E-18.

Urban conditions are characterized not so much by city limits or other arbitrary boundaries but by the following features:

1. Mainline roadways with more than 2 lanes.
2. High traffic volumes on the through roadways.
3. High volumes of traffic entering and leaving interchanges.
4. Interchanges closely spaced.
5. Roadway and interchange lighting.
6. Three or more interchanges serving the major city.
7. A loop, circumferential or spur serving a sizable portion of the urban population.

2F-5 Characteristics of Rural Freeway Signing

Rural areas ordinarily have greater distances between interchanges which permits adequate spacing for the sequences of signs on the approach to and departure from each interchange. The tendency to group all signing in the immediate vicinity of rural interchanges should be avoided by considering the entire route in the evolution of sign plans. Extra effort should be given to the placement of signs at natural target locations to command the attention of the driver, particularly when the message to be conveyed has a high relative priority.

Rural sections of freeways are subjected to high speed traffic. The absence of traffic in adjoining lanes and on entering or leaving ramps, often adds monotony to rural driving. This increases the importance of signs and markings that call for decision or action. Accordingly, where there are long distances between interchanges and the alignment is relatively unchanging, signs should be positioned for their best effect on drivers.

2F-6 Sign Layouts

There should be general adherence to the prescribed horizontal and vertical sequences for route markers, cardinal directions, destination names, arrows and other components of the sign display. The present standards are intended to result in nationwide uniformity and yet contain provisions flexible enough for most signing problems. Minor departures may be necessary when symbols are employed.

2F-7 Designation of Destinations

Freeways offer superior traffic service to population centers located on or near them. For this reason, the course of the freeway route and the major destinations or "control cities" (sec. 2D-37) along it must always be clearly identified. Destination legends should provide the drivers the best orientation possible. Continuity in successive sign messages and consistency with available map information are essential.

National guidelines for the selection of control cities are available. The "List of Control Cities For Use in Guide Signs on Interstate Highways" is available from the American Association of State Highway and Transportation Officials (for address see page iii). The determination of major destinations or control cities will be important to the quality of service provided by the freeway, and control city legends should be used in the following situations:

1. Interchanges between freeways.
2. Separation points of overlapping freeways.

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3. On directional signs on intersecting routes, to guide traffic entering the freeway.
4. On Pull Thru signs.
5. On the bottom line of post interchange distance signs.

2F-8 Limit on Destination Legends

Destination names and directional information must not exceed the amount of copy that most drivers will be able to comprehend readily. The limitations on destination legends described in section 2E-9 shall apply to major guide signs on freeways. Population figures or other similar information shall not be used on exit guide signs.

2F-9 Routing to a Given Destination

A route diverging from a freeway should not be posted with any of the same destination names as are shown at that point for the freeway route. At any decision point, a given destination shall be indicated over only one route.

2F-10 Overhead Sign Installations

Overhead signs have application in lieu of or as an adjunct to ground signs when engineering study indicates that they are needed. Factors which may justify the erection of overhead signs are enumerated in section 2A-22. These factors should be evaluated to arrive at decisions to erect overhead signs.

Information relative to the design of sign structures has been standardized by the American Association of State Highway and Transportation Officials.*

Use of overcrossing structures for the support of overhead signs is described in section 2E-17.

2F-11 Style of Lettering and Legend Spacing

Letter style and height, and arrow design have been standardized for freeway signs to assure uniform and effective application. With all freeway signs, the message dimensions shall be determined first, and the outside sign dimensions secondarily. The prescribed numeral and letter sizes according to interchange classification and component of sign legend appear in table II-2. Other sign letter size requirements not specifically identified elsewhere in this Manual should be guided by these specifications.

All names of places, streets, and highways on freeway guide signs shall be composed of lower-case letters with initial upper-case letters. The initial upper-case letters shall be about $1\frac{1}{3}$ times the "loop" height of the lower-case letters. Other word legends shall be in upper-case letters. Designs for upper-case and lower-case alphabets are available,

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

together with tables of recommended letter spacing, from the Federal Highway Administration.** The initial letters and the numerals used will be Series E(M) of the Standard Alphabets for Highway Signs.

Interline and edge spacing shall be as specified in section 2E-12.

Abbreviations may be used but should be kept to a minimum. The provisions of sections 2A-14 and 2E-12 shall apply.

Table II-2 Letter and Numeral Sizes for Freeway Guide Signs

A. Advance Guide, Exit Direction, and Overhead Signs

Major*

	Category (a)*	Category (b)*	Inter- mediate*	Minor*	Overhead
<i>Exit Panel</i>					
Word	10"	10"	10"	10"	10"
Numeral	15"	15"	15"	15"	15"
Letter	15"	15"	15"	15"	15"
<i>Interstate Route Marker</i>					
Numeral	24" 18"				18"
<i>Shield</i>					
(1-2 Digit)	48 x 48 36 x 36				36" x 36"
(3 Digit)	60 x 48 45 x 36				45" x 36"
<i>U.S. or State Marker</i>					
Numeral	24" x 18"	18"	18"	12"	18"
<i>Shield</i>					
(1-2 Digit)	48 x 48 36 x 36	36" x 36"	36" x 36"	24" x 24"	36" x 36"
(3 Digit)	60 x 48 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"	15" 12"	12"	10"	12"
Numeral	18"	18" 15"	15"	12"	15"
<i>Cardinal Direction</i>					
Word	15"	15" 12"	12"	8"	12"
<i>Name of Place, Street, or Highway</i>					
Word	20"/15"	20"/15"	16"/12"	13.3"/10"	16"/12"
<i>Distance</i>					
Numeral	18"	18" 15"	15"	12"	15"
Fraction	12"	12" 10"	10"	8"	10"
Word	12"	12" 10"	10"	8"	10"

* See Section 2E-23 Interchange Classification.

Note: (|) Vertical bar signifies separation of desirable and minimum sizes.

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

B. Gore Signs

At major and intermediate interchanges

Word	12"
Numeral & Letter	18"

At minor interchanges

Word	8"
Numeral & Letter	10"

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

TABLE II-2 Letter and Numeral Sizes for Freeway Guide Signs—Cont.

<i>C. Pull Thru Signs</i>	
Destination Message	
Word	16''/12''
Route Marker as Message	
Cardinal Direction.....	12''
Route Marker.....	36''×36''
<i>D. Supplemental Guide Signs</i>	
Exit Number	
Word	10''
Numeral	15''
Letter	15''
Place name	13.3''/10''
Action message	10''
<i>E. Variable Message Signs**</i>	
Place name	13.3''/10''
Advisory message.....	13.3''/10''
Action message	
Word	10''
Numeral	10''
Warning & Regulatory..... see Standard Highway Signs booklet for sizes.***	
**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.	
***Available from the Federal Highway Administration (HT0-20) Washington, D.C. 20590	
<i>F. Interchange Sequence Signs</i>	
Word	13.3''/10''
Distance Numeral.....	13.3''
Fraction.....	10''
<i>G. "Next—Exits" Signs</i>	
Place name	13.3''/10''
NEXT—EXITS.....	10''
<i>H. Distance Signs</i>	
Word	8''/6''
Numeral	8''
<i>I. General Motorist Services Signs</i>	
Exit Number	
Word	10''
Number.....	15''
Letter	15''
Services.....	10''
<i>J. Rest Area and Scenic Area Signs</i>	
Word	12''
Distance	
Numeral	15''
Fraction.....	10''
Word	12''

Table II-2 Letter and Numeral Sizes for Freeway Guide Signs—Continued

Action Message	
Word	12"
K. <i>Mileposts</i>	
Word	4"
Numeral	10"
L. <i>Boundary and Orientation Signs</i>	
Word	8"/6"
M. <i>"Next Exit" and "Next Services" Signs</i>	
Word	8"
Numeral	8"
N. <i>"Exit Only"</i>	
Word	12"
O. <i>Diagrammatic Signs</i>	
Lane width	5"
Lane lines	1" x 6"
Vertical space between lane lines	6"
Stem height (up to the upper point of departure)	30"
Arrowhead—(standard "up" arrow)	
Space between arrowhead and route shield	12"

2F-12 Sign Borders

Signs shall have a border of the same color as the legend, to outline their distinctive shape and thereby give them easy recognition and a finished appearance. For guide signs larger than approximately 10 feet by 6 feet, the border should have a width of approximately 2 inches. For smaller guide signs, a width of approximately 1¼ inches may be used, but the width should not generally exceed the stroke width of the major lettering on the sign.

Corner radii of sign borders should be approximately one-eighth of the minimum dimension on guide signs, except that the radii should not exceed 12 inches on any sign. The sign area outside the corner radius need not be trimmed.

2F-13 Color, Reflectorization, and Illumination

Color, reflectorization and illumination of freeway guide signs shall conform to the provisions for expressway guide signs set forth in sections 2E-5 and 2E-6. In addition, the background of all overhead signs that are not independently illuminated shall be reflectorized. When a sign is internally illuminated the requirements for reflectivity do not apply.

Technological developments have produced a variety of types of illumination for highway signs. Internally illuminated signs, having translucent faces, are especially effective for freeway use. Their use may be justified for some installations. Where internal illumination is used, the sign colors shall appear essentially the same by night and by day.

2F-14 Sign Arrows

The design and application of arrows for freeway guide signs shall be the same as that specified in section 2E-15 for expressway signs. Dimensional details for "Up" and "Down" arrows are shown in the appendix of the Standard Highway Signs booklet.*

2F-15 Viewing Factors

The requirements set forth in section 2E-16 concerning placement of signs for effective viewing shall apply to freeway signing.

2F-16 Vertical Clearance

In ground installations, directional guide signs shall, except as noted below, be erected at a minimum height of 7 feet above the edge of the pavement to the bottom of the sign. If a sign is mounted below another sign, the major sign shall be at least 8 feet and secondary sign at least 5 feet above the level of the pavement edge.

When signs are positioned a significant distance away from the pavement edge to increase roadside safety, the vertical clearance on such signs may be reduced to 5 feet above the pavement edge. Notwithstanding the above, all regulatory and warning signs and route markers shall be at least 6 feet above the level of the pavement edge.

Overhead signs shall have a vertical clearance of not less than 17 feet to the sign, light fixture, or sign bridge, over the entire width of the pavement and shoulders, except that where a lesser vertical clearance is used for design of other structures the vertical clearance to overhead signs, light fixtures, or sign bridges need not be greater than one foot in excess of the clearance at other structures. In special cases it may be necessary to reduce the vertical clearance still further because of substandard dimensions in tunnels and other major structures such as double-deck bridges.

2F-17 Horizontal Clearance

To provide a roadside recovery area for out-of-control vehicles, liberal horizontal clearances should be provided for roadside signs and overhead sign supports. No specific minimum clearance is established, but in no case shall any part of the sign or sign structure, which is within the applicable vertical clearance dimension and which is exposed to traffic,

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

be less than 2 feet beyond any surface prepared for normal or emergency travel of vehicles.

Rigid criteria for lateral clearances should not be followed, but advantage should be taken of the longitudinal location of existing guardrail, overcrossing structures and similar conditions to lessen the exposure to traffic of signs and sign supports. Breakaway or yielding supports should be located as far from the traveled portion of the roadway as feasible.

Light standards may be used in place of separate sign supports to accommodate the installation of smaller signs and route markers wherever this is practicable.

2F-18 Interchange Classification

For freeway signing purposes, interchanges are classed as major, intermediate, or minor. These terms are defined in section 2E-23.

2F-19 Interchange Exit Numbering (figs. 2-23 through 2-25)

Interchange exit numbering along freeways provide valuable orientation for the driver and shall be used in signing each interchange exit. The general plan for numbering interchange exits is shown in figures 2-23 through 2-25.

Interchange exit numbers shall be displayed with each advance guide sign, the exit direction sign, and the gore sign. They may be used with supplemental guide signs and service signs. The exit number is to be displayed on a separate panel at the top of the major sign. Details of typical panel designs are shown in figures 2-9 and 2-14 (pages 2E-11 and 2E-16) and, as incorporated on guide signs, in figures 2-16 through 2-42.

Subject to the exceptions noted herein, the standard exit number legend shall include the word ~~EXIT~~ ^{EXIT(S)} in 10-inch capital letters. The appropriate number shall be in 15-inch numerals and the suffix letter A or B (on multi-exit interchanges) in 15-inch capital letters in a single-line format on a panel 24 inches in vertical dimension.

Where a route originates within a State, the southernmost or westernmost terminus shall be the beginning point for numbering. If a loop, spur, or circumferential route crosses State boundaries, the sequence of numbering shall be coordinated by the States to provide continuous numbering.

For circumferential freeway routes, the numbering of interchanges shall be in a clockwise direction. The numbering shall begin with the first interchange west of an imaginary north-south line bisecting the circumferential route at a radial freeway or other Interstate route, or some other conspicuous landmark in the circumferential route near a south polar location. (See figure 2-23).

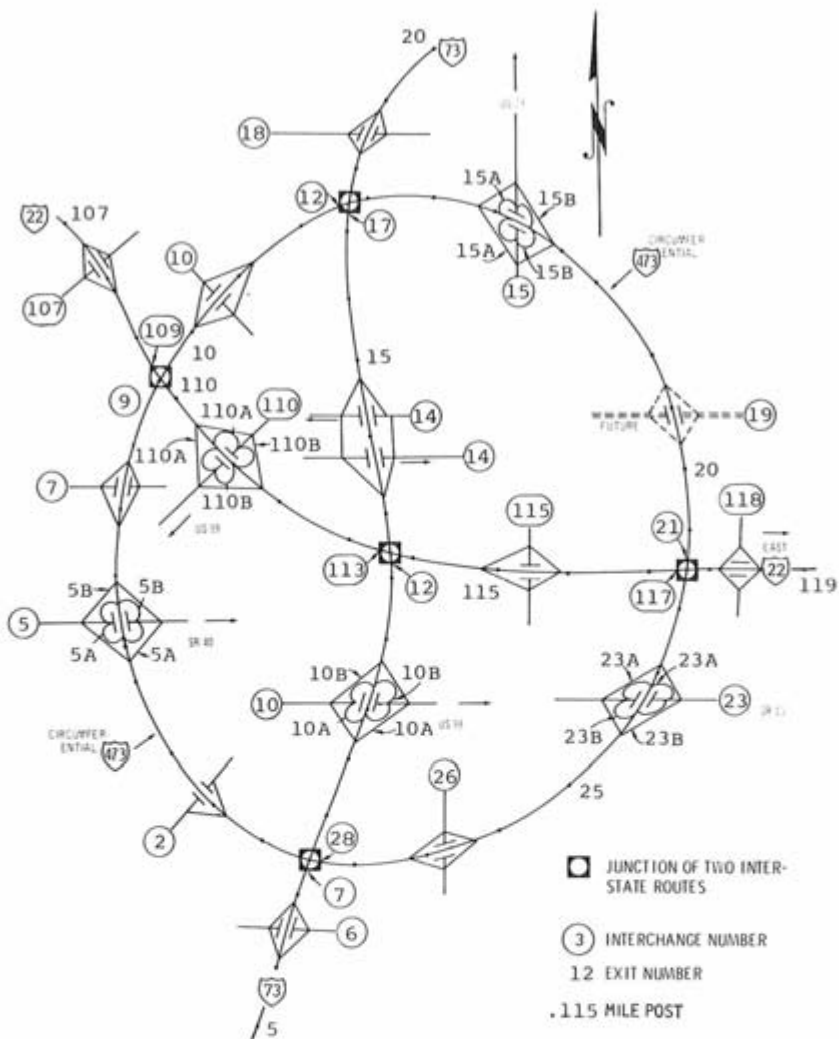


Figure 2-23. Typical interchange numbering for mainline and circumferential routes.

The interchange numbers on loop freeway routes shall begin at the loop interchange nearest the south or west main line junction and increase in magnitude toward the north or east main line junction. Spur route interchanges shall be numbered in ascending order starting at the interchange where the spur leaves the main line of the principal freeway route. (See figure 2-24).

Where numbered freeway routes overlap, continuity of interchange numbering shall be established for only one of the routes. Either route may be selected, but the one chosen should also have continuity in mileposting. (See figure 2-25.)

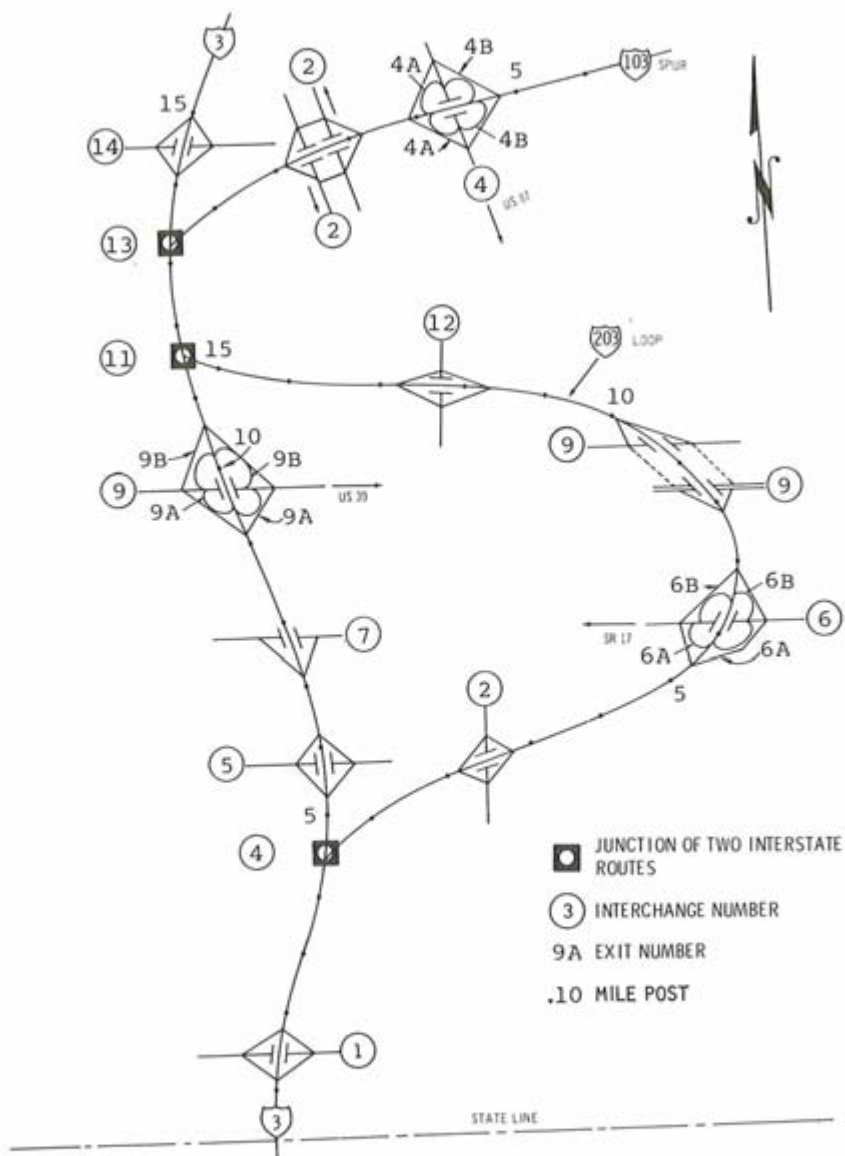


Figure 2-24. Typical interchange numbering for mainline loop and spur routes.

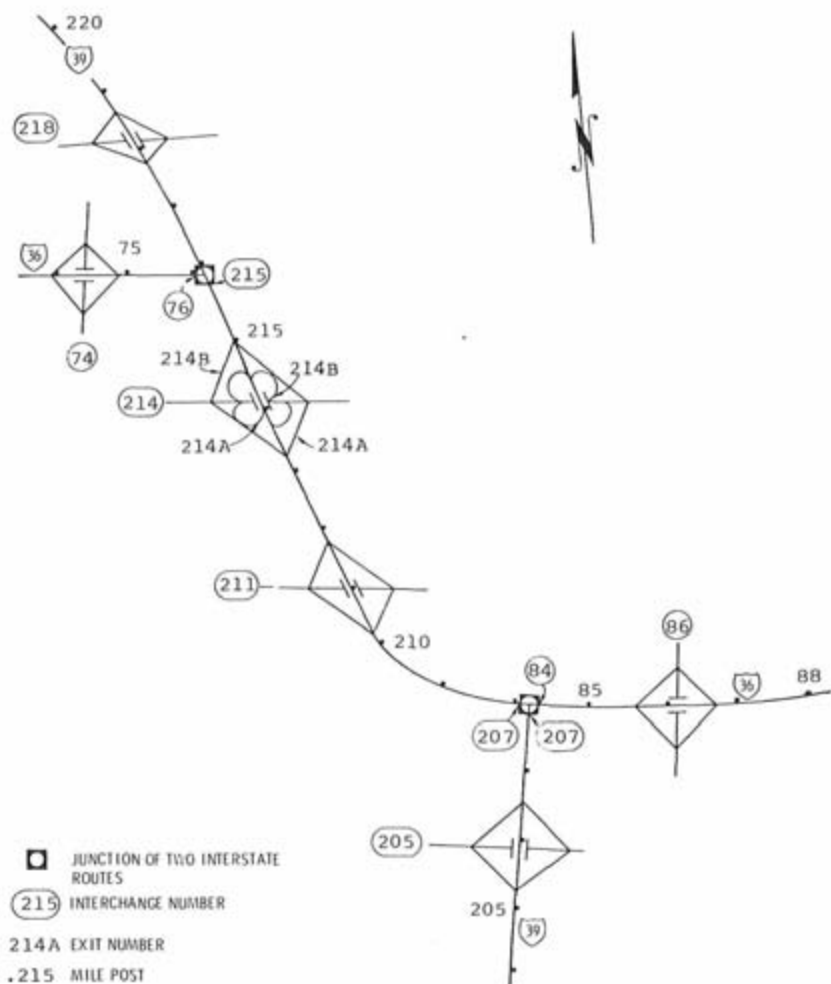


Figure 2-25. Typical interchange numbering where freeway routes overlap.

2F-20 Interchange Guide Signs

As in the case of expressways with grade separations, the major signs at freeway interchanges and on their approaches are advance guide signs and exit direction signs. It is essential that the same destination messages be displayed on these signs. New destination information should not be introduced into the major sign sequence for one interchange, nor should information be dropped.

Reference should be made to sections 2E-25 through 2E-35 for a detailed description of the signs, in the order that they should appear at

the approach to and at each interchange. Supplemental guide signing should be used sparingly as provided in section 2E-28. Guide signs directing motorists to park and ride facilities shall be considered as supplemental signs (fig. 2-26). Section 2D-41 contains information on the use of local transit logos and the carpool symbol. Letter and numeral sizes for freeway interchange signs are shown in table II-2 (page 2F-5).



Figure 2-26. Guide sign to park & ride facility. (Freeway).

2F-21 Post Interchange Signs

Where space between interchanges permits, a fixed sequence of post interchange signs should be displayed. The provisions of sections 2E-32 and 2E-33 apply to the use and placement of these signs.

2F-22 Signing by Class of Interchange

Motorists need signs to help identify the geometric layout of interchanges, as well as to obtain route, direction and destination information for specific exit ramps. Signing layouts, therefore, must be consistent for each type of interchange. For the sake of uniform application the significant features of the signing plan for each of the more frequent kinds of interchanges, as described in sections 2F-23 through 2F-32 and illustrated in figures 2-27 through 2-42, should be followed as closely as possible. Where unusual geometric features exist, variations in signing layout are permissible, but should be held to a minimum.

The interchange layouts shown in most of the figures illustrate only the major guide signs for one direction of traffic on the through road and on the crossroad.

2F-23 Interchanges Between Freeways (figs. 2-27 through 2-31)

Interchanges between freeways are major decision points where the effect of taking a wrong ramp cannot be easily corrected. Reversing direction on the crossing highway or reentering to continue on the intended course is usually not possible. The sign messages should contain only the route shield, cardinal direction, and the name of the next control city on that route.

Overhead signs are required at a distance of one mile and at the theoretical gore of each connecting ramp, and may be used at the two mile point. Arrows should point as indicated in section 2D-8, unless a diagrammatic representation of the interchange layout requires otherwise. The name of the control city and/or arrow may be omitted on signs which indicate the straight-ahead continuation of a route.

At bifurcations where the off-route movement is to the left or where there is an optional lane split, driver expectancy problems usually result and diagrammatic signs should be used at the advance guide sign location. The EXIT ONLY panel shall not be used on diagrammatic signs at any major bifurcation or split.

Two-lane exits with an optional lane can cause driver confusion and diagrammatic signs may be used at the advance guide sign locations (fig. 2-30).

Some two-lane exits with an optional lane carry the through route on the exiting lanes. These interchanges create serious expectancy problems for all drivers. Diagrammatic signs (fig. 2-31) should be used at the advance guide sign locations for this type of interchange.

Warning signs with the message EXIT (35) MPH may be used where an engineering study shows that it is necessary to display a speed reduction message.

When diagrammatic signs are used they shall conform to the provisions of section 2F-24.

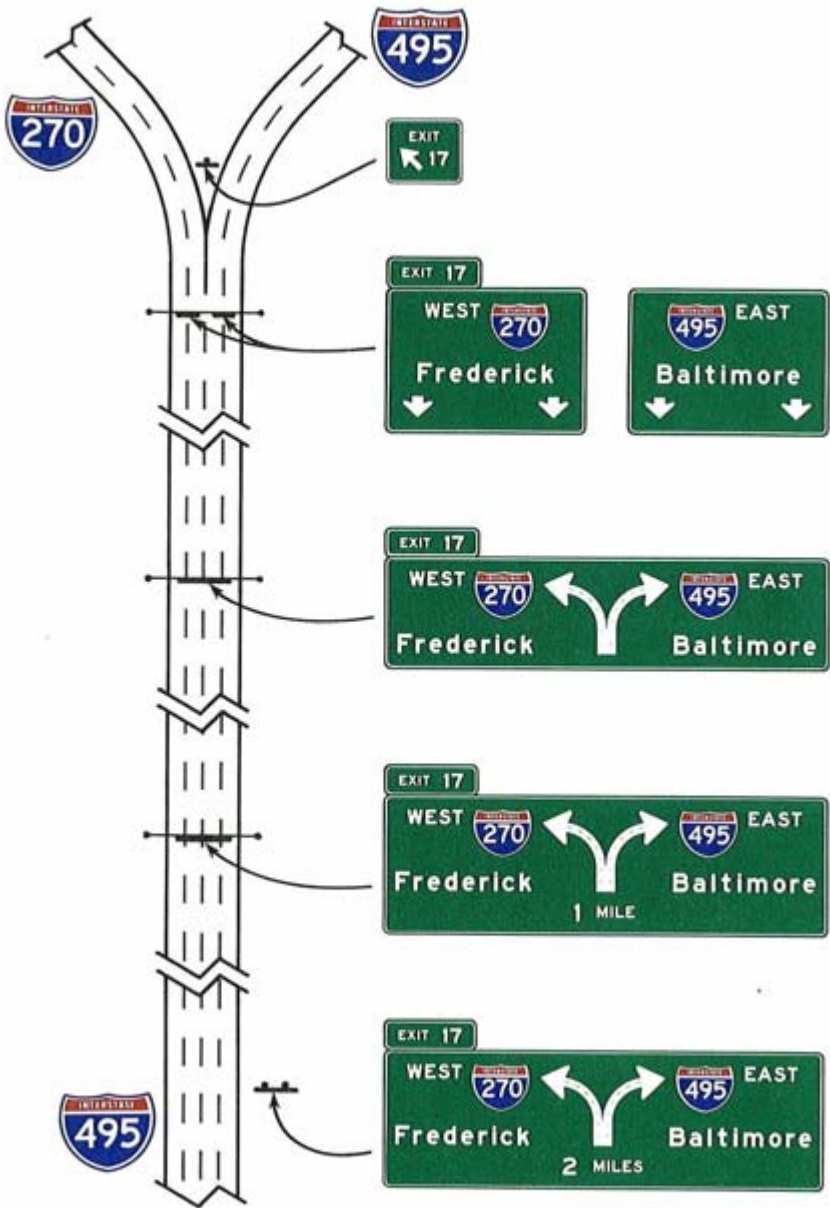


Figure 2-28. Split without optional lane having off route to left.

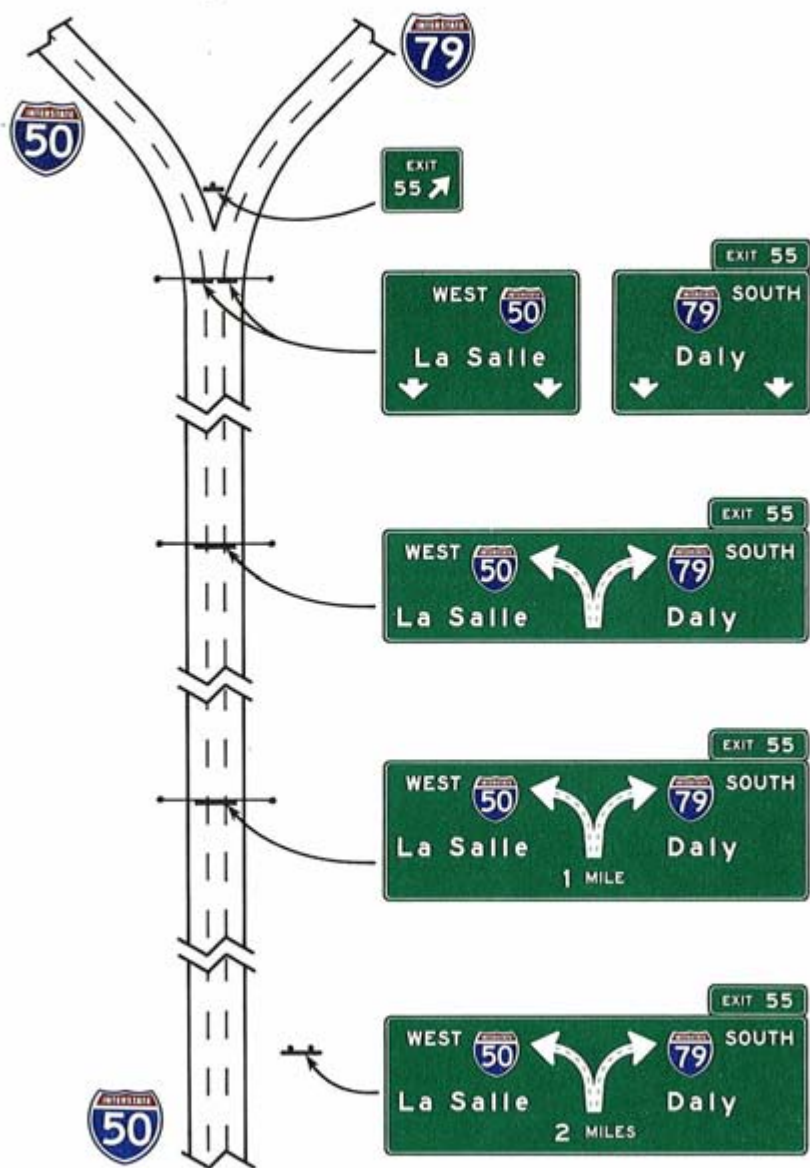


Figure 2-29. *Optional lane split (Not overlapping routes).*

At cloverleaf interchanges, diagrammatics have been shown to be inferior to conventional signs and shall not be used. Highway departments are encouraged to continue experimentation (sec. 1A-6) with other diagrammatic signing so that standards as contained herein may be updated in future editions of the Manual.

Diagrammatic signs shall be designed in accordance with the following criteria:

1. The graphic legend shall be of a plan view showing a simplified off-ramp arrangement.

2. Only one destination may be shown for each arrowhead, with a maximum of two destinations per sign.

3. The graphic should not depict deceleration lanes. A black on yellow "EXIT ONLY" panel should be used to supplement a lane drop graphic.

4. The shaft for the exit ramp movement should be shorter than but not separated from the through movement graphic.

5. Arrow shafts should contain lane lines where appropriate and route shields shall not be used as a substitute for arrow heads.

6. Route shields, cardinal directions and destinations should be clearly related to the arrowhead and the arrowhead should point toward the route shield for the off movement.

7. The cardinal direction should generally be placed adjacent to the route shield and the destination should be placed below and justified with the route shield.

8. Exit number panels should be located toward the top left edge of the sign for a left exit and toward the top right edge for right exits.

Specific guidelines for more detailed design of these signs are contained in the Standard Highway Signs booklet.*

2F-25 Signing for Interchange Lane Drops (figs. 2-33 through 2-35)

Major guide signs for all lane drops at interchanges shall be mounted overhead. The EXIT ONLY panel(s) (fig. 2-33) shall be used for all interchange lane drops at which the through route is carried on the mainline. The EXIT ONLY panel E11-1 should be used in all new signing of lane drops on all advance guide signs for right-hand exits (fig. 2-34). For lane drops on the left side, diagrammatic signing with the EXIT ONLY panel E11-1c should be used without a down arrow for advance guide signs (fig. 2-35). The exit direction sign for all lane drops shall be of the format shown in E11-1a.

EXIT ONLY messages of either E11-1b or E11-1c formats may be used on existing signing to warn of a lane drop situation ahead. The E11-1b panel shall be placed on either side of a white down arrow. The

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

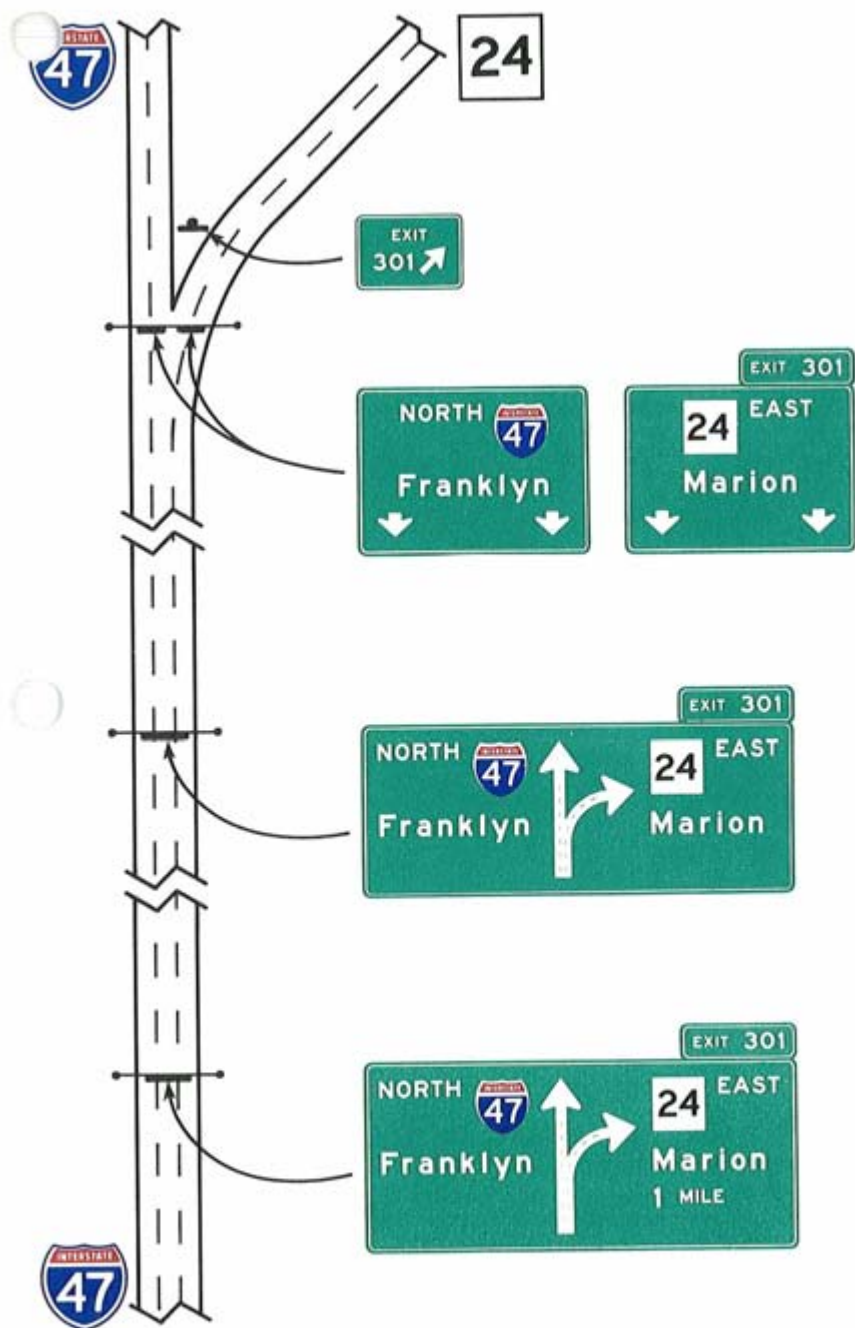


Figure 2-30. Two-lane exit with optional lane.



Figure 2-31. Two-lane exit with optional lane and route discontinuity.



Figure 2-32. Diagrammatic sign for single left exit.

E11-1c panel, when used on a nondiagrammatic sign, shall be placed between the lower destination message and the white down arrow.

A standard up arrow (left or right side) shall be used with the EXIT ONLY E11-1a panel at the exit direction sign location. One and two mile advance guide signs, when used, shall contain the distance message. Advance guide signs for lane drops within one mile of the interchange should not contain the distance message.

Wherever the dropped lane carries the through route, diagrammatic signs should be used without the EXIT ONLY panel.

2F-26 Cloverleaf (fig. 2-36)

This type of interchange has two exits for each direction of travel. The exits are closely spaced and have common advance guide signs. The advance guide signs should include two place names, one corresponding to each exit ramp, with the name of the place served by the first exit on the upper line. An overhead sign shall be placed at the theoretical gore point of the first exit ramp, with an upward slanting arrow on the sign for that exit and the message $(\frac{1}{4})$ MILE on the sign for the second exit, as shown in figure 2-36.

The second exit shall be indicated by an overhead exit direction sign over the auxiliary lane mounted on the structure if the freeway passes under the crossroad, or on a cantilever or full-span structure if the freeway passes over the crossroad. A gore sign shall also be used at each exit.

Exit numbers shall not indicate the cardinal directions of the cross route. Interchanges with more than one exit from the main line shall be numbered as described in section 2F-19 with an appropriate suffix.

2F-27 Cloverleaf with Collector-Distributor Roadways (fig. 2-37)

Signing on the collector-distributor roadway shall be basically the same as on a cloverleaf interchange. However, the advance guide signs shall use the singular EXIT as shown in the figure. Exits from the collector-distributor road shall not be numbered. Signs for these exits shall be overhead and located at the theoretical gore of the collector-distributor roadway and the exit ramp.

2F-28 Partial Cloverleaf (fig. 2-38)

As in the figure, the overhead exit direction sign should be placed on the structure if the freeway passes under the crossroad and the exit roadway is located beyond the structure. A gore sign shall also be used.



E11-1



E11-1a



E11-1b



E11-1c

Figure 2-33. Exit only panel.

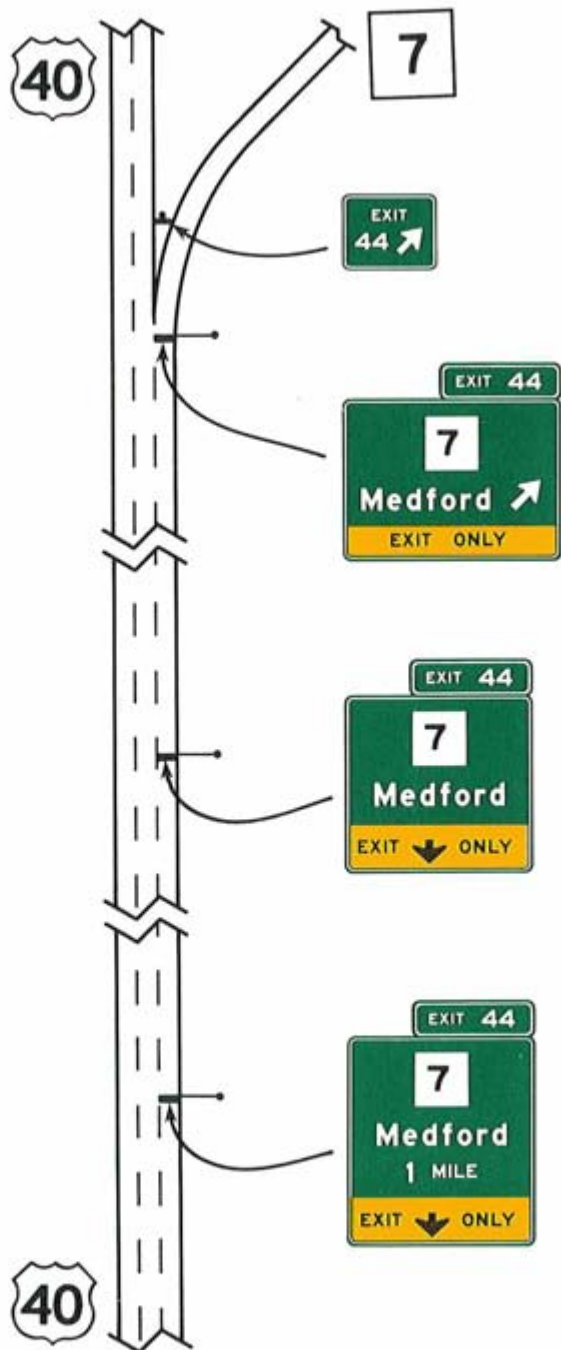


Figure 2-34. EXIT ONLY on right (Right hand interchange lane drop).

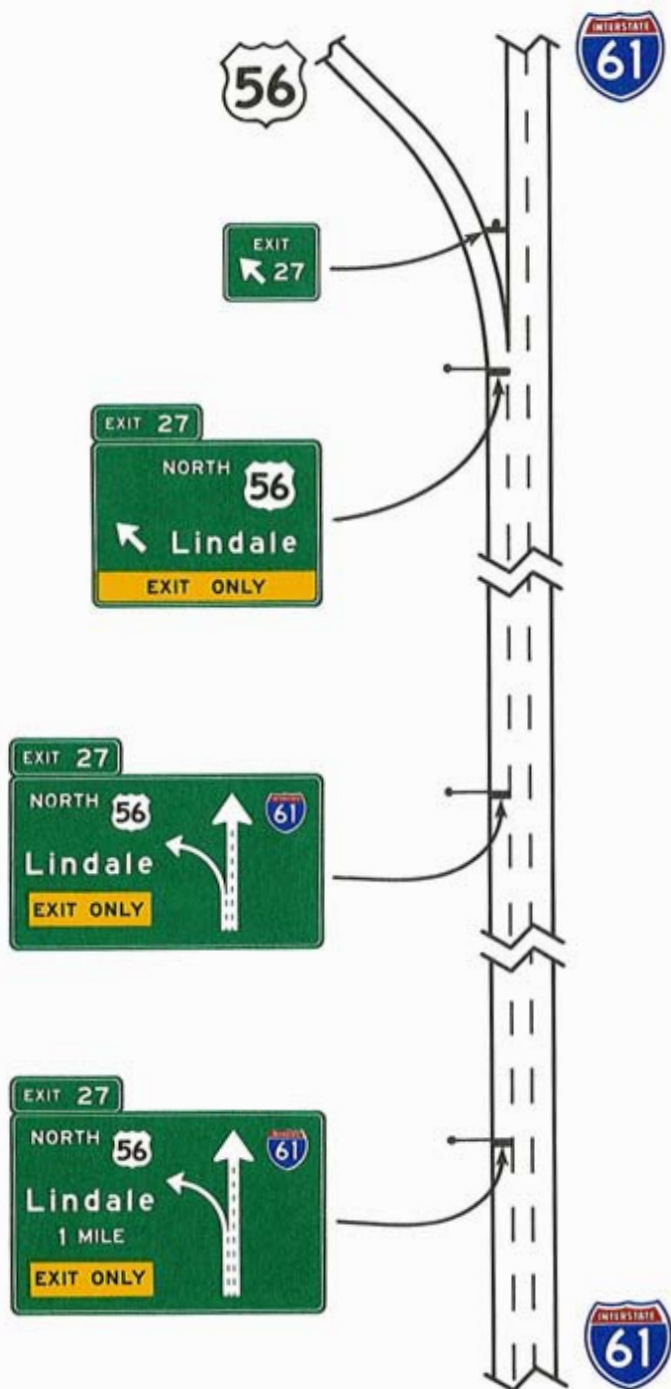


Figure 2-35. EXIT ONLY on left with diagrammatic (Left-hand interchange lane drop).

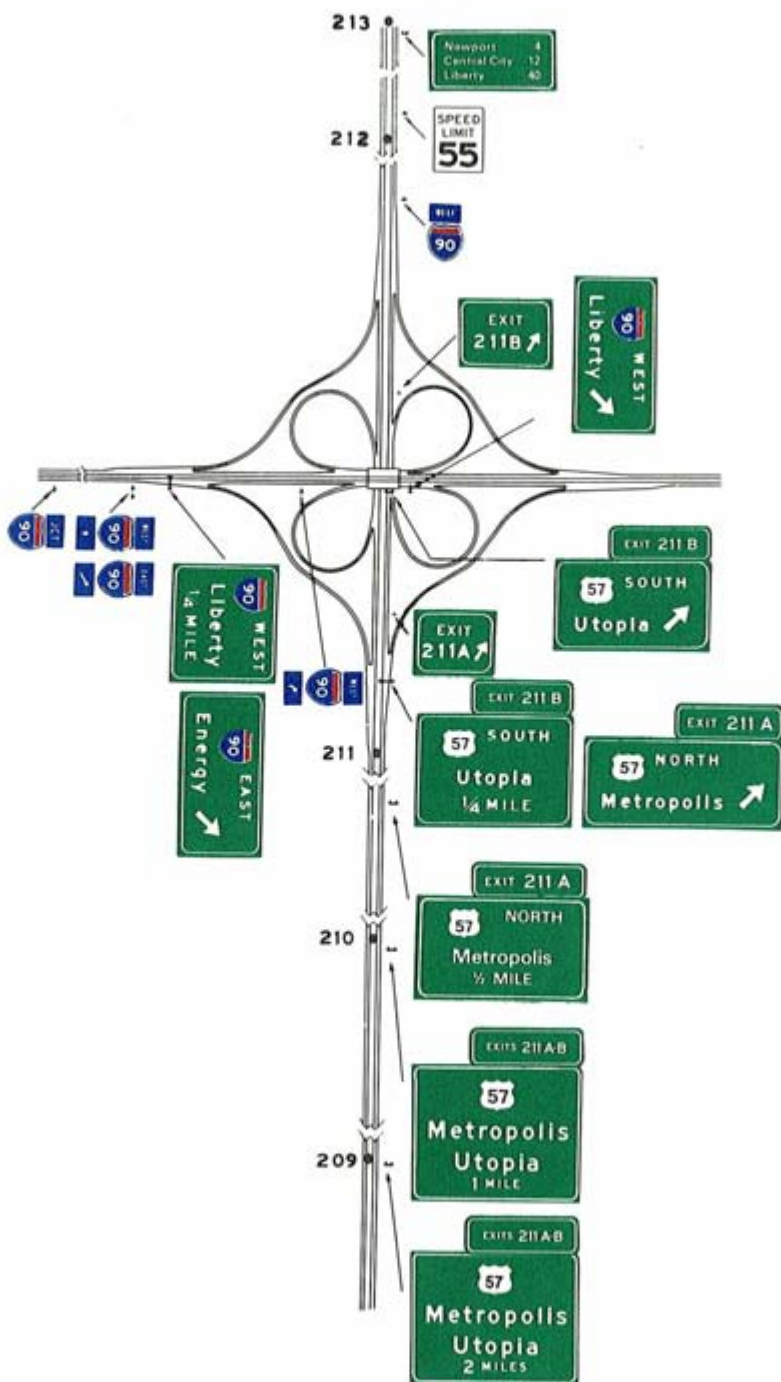


Figure 2-36. Choverleaf interchanges.

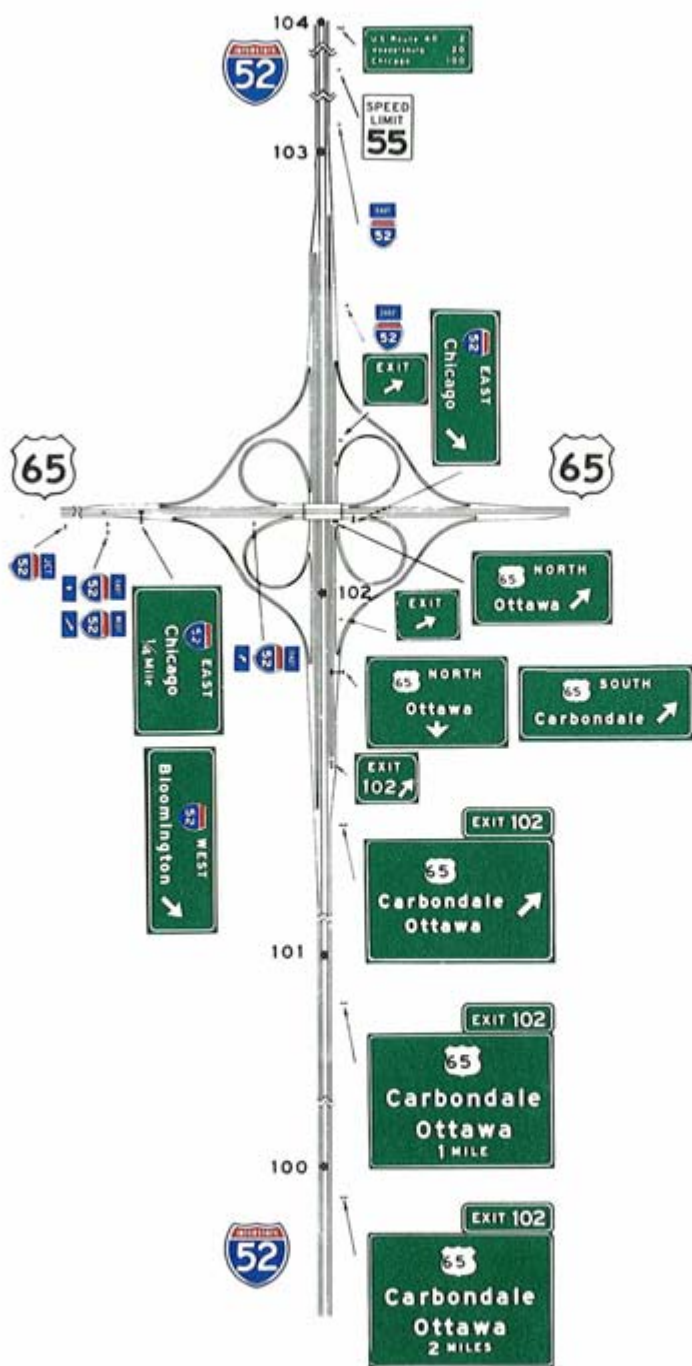


Figure 2-37. Full cloverleaf interchange with collector-distributor roads.

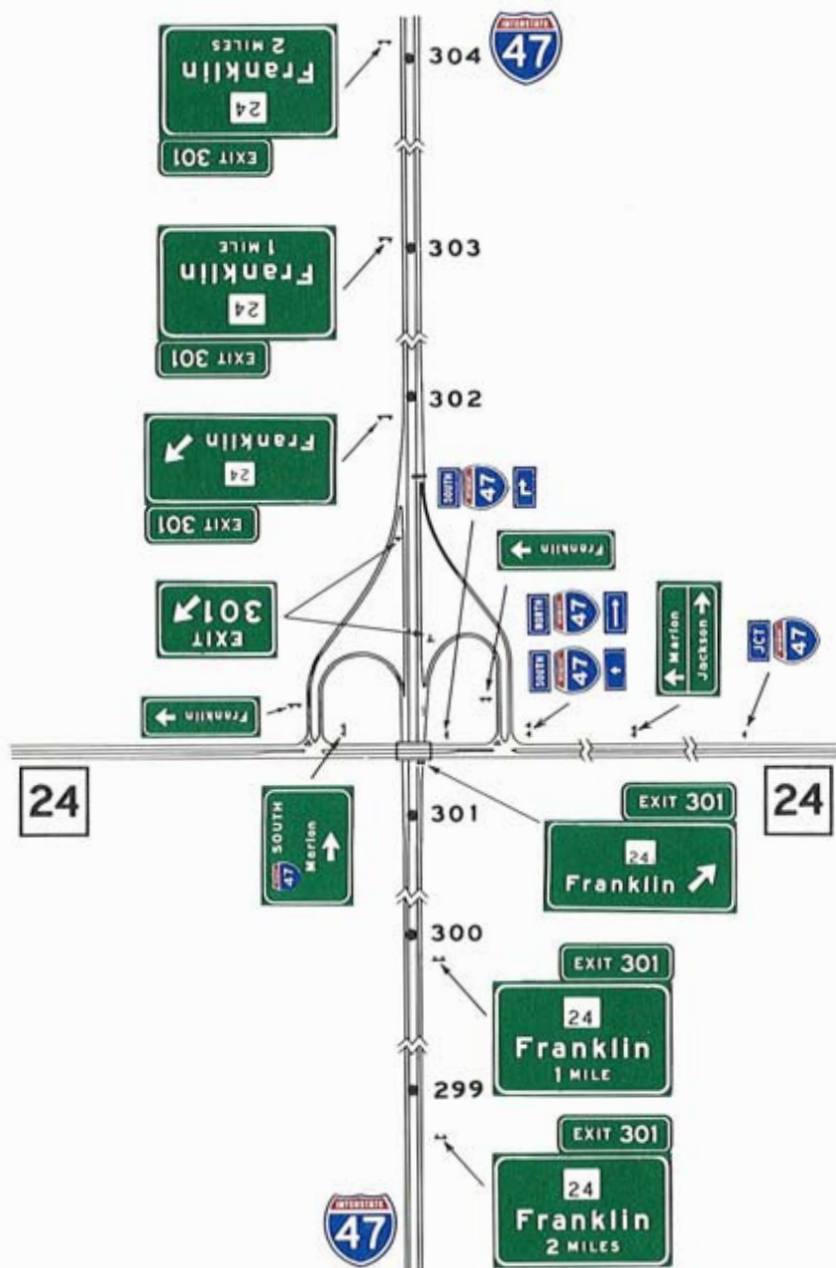


Figure 2-38. Partial cloverleaf interchange.

2F-29 Diamond (fig. 2-39)

The signing layout for all interchanges having only one exit ramp in the direction of travel should be similar, regardless of the interchange type (figs. 2-37 through 2-40). The singular message EXIT shall be used on advance guide and exit direction signs. Exit numbers shall not include the cardinal initials corresponding to the direction of the cross route.

The typical diamond interchange ramp departs from the mainline roadway such that a speed reduction generally is not necessary in order for a driver to safely negotiate an exit maneuver from the mainline into the ramp roadway. When this is the case an exit speed sign should not be used. A Stop Ahead or Signal Ahead warning sign may be placed, where an engineering study indicates a need, along the ramp in advance of the cross street to give notice to the driver so that a safe stop may be made. When used, these signs should be used in pairs with one sign on each side of the ramp for two lane ramps and singly for one lane ramps.

When a ramp departs from the mainline and when there is a curve present that will cause a significant speed reduction, an Exit Speed sign may be posted based on an engineering study. The Exit Speed sign should then be located along the deceleration lane or along the ramp such that it is visible to the driver far enough in advance so that a safe slowing and exiting maneuver may be made.

2F-30 Urban Diamond (fig. 2-40)

In urban areas, street names are often shown as the principal message in destination signs. If interchanges are too closely spaced to properly locate the advance guide signs, they may be placed closer to the exit, and the mileage figures adjusted accordingly. Where two or more serve the same community, the Community Interchanges Identification sign is useful in helping motorists make a choice of exits. The signing layout is as shown in figure 2-40, (page 2F-31).

2F-31 Closely Spaced Interchanges (fig. 2-41)

When a series of interchanges is closely spaced, the advance guide sign for the next interchange should be mounted on an overhead structure located downstream from the gore of the preceding interchange. Information for more than one interchange shall not be shown on such signs.

Interchange sequence series signs should be used. When used, they should identify and show street names and distance for the next three exits, as shown in figure 2-41 (page 2F-32).

2F-32 Minor Interchange (fig. 2-42)

A lower standard of signing is prescribed for a minor interchange because such an interchange customarily serves low volumes of local traffic only. The size of messages to be used is shown in table II-2 (page 2F-5).

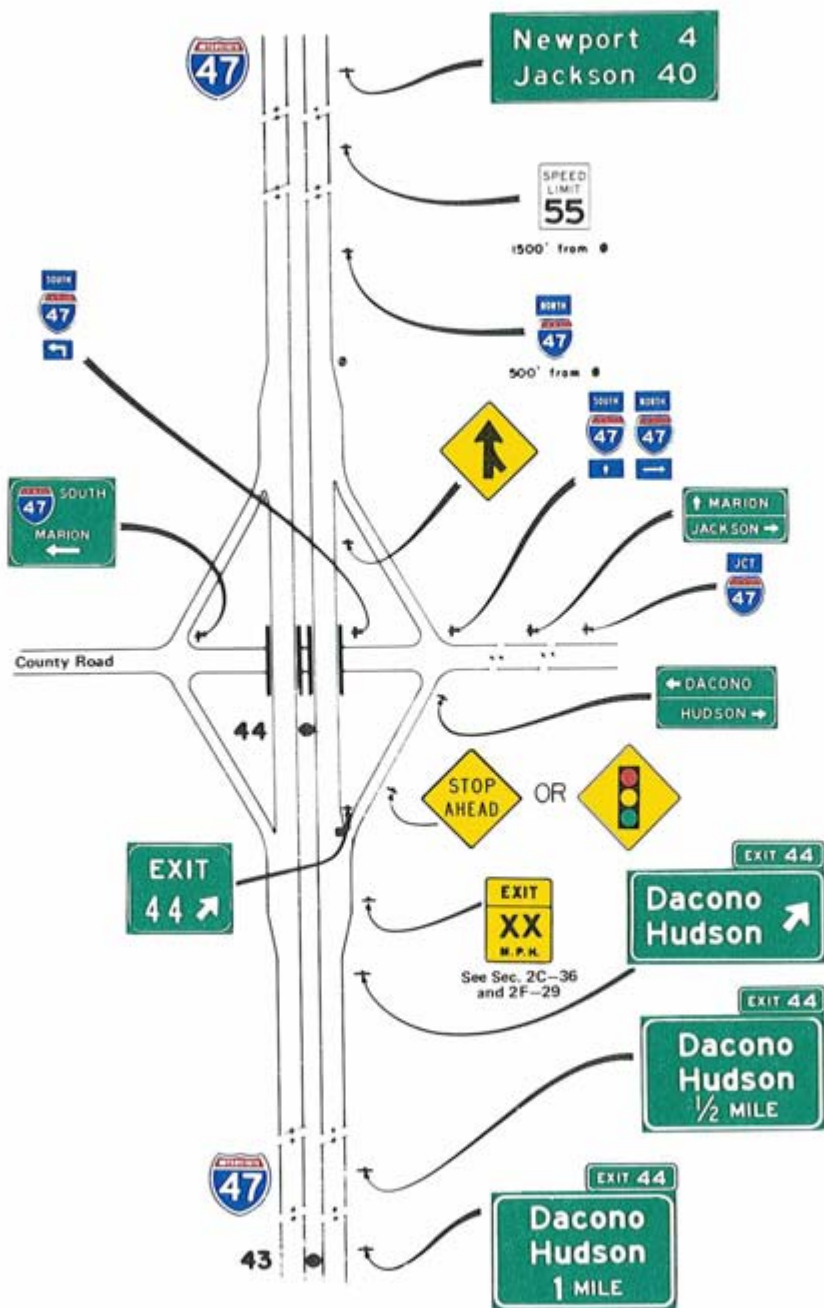


Figure 2-39. Diamond interchange.



Figure 2-40. Urban diamond interchange.

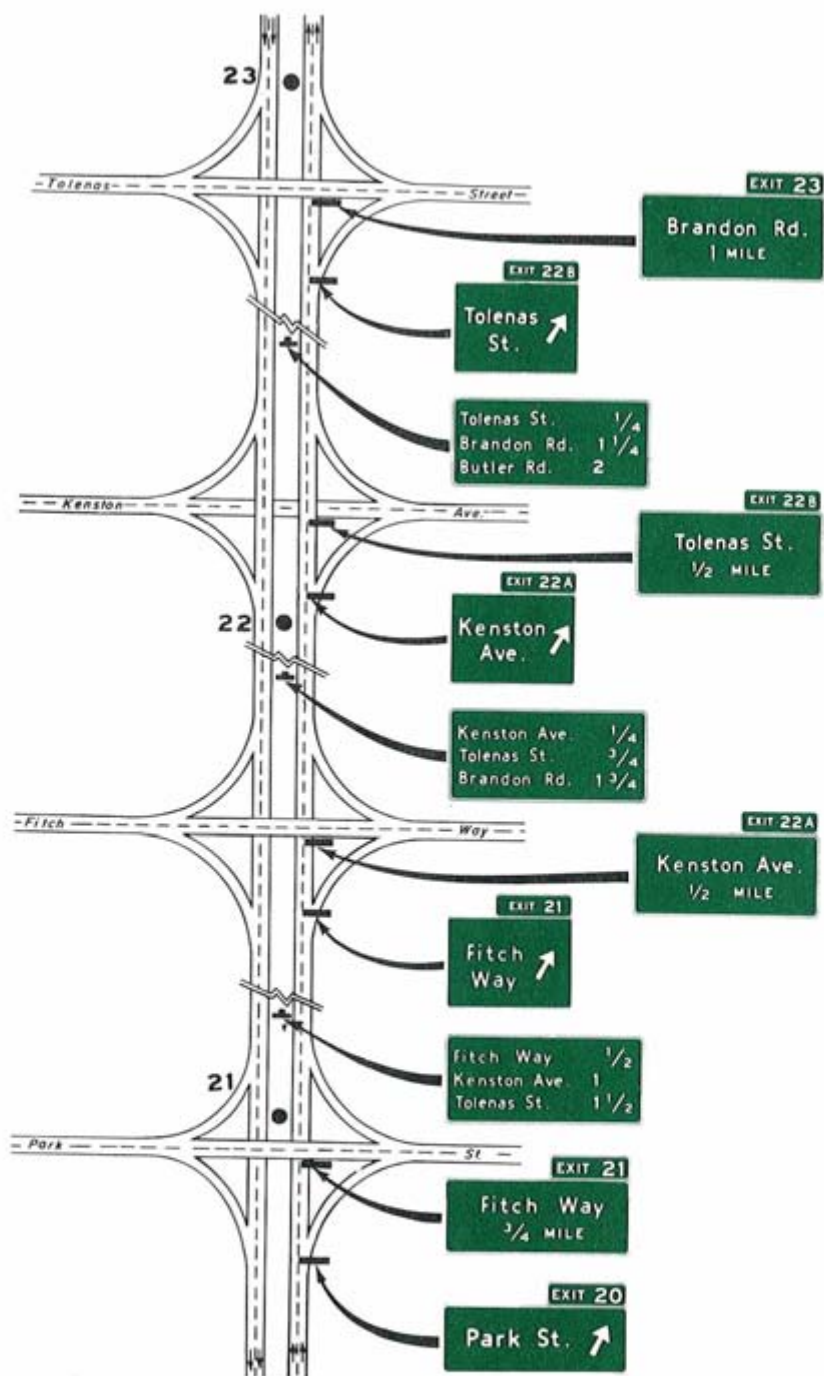


Figure 2-41. Series of closely spaced interchanges using sequence signs and sign spreading.



Figure 2-42. Minor interchange.

At least one advance guide sign and a gore sign shall be placed at a minor interchange, as shown in figure 2-42. An exit direction sign should also be used.

2F-33 Signing for General Motorist Services (fig. 2-43)

Although there are no commercial services available to the traveler between interchanges it is expected that adequate fuel, motor services, food service and lodging will be available near most major interchange sites. It is also assumed that service signing will not be required in urban areas. However, on those rural sections where such services are infrequent, the driver will need information to enable him to plan his stops. Interchange numbers may be shown on service signs as shown in figure 2-43. Action messages may be EXIT ¼ MILE or EXIT 1 MILE, etc. (see sec. 2E-37 and fig. 2-21, page 2E-22).

Only services that adequately serve the needs of the freeway motorist should be shown. Where services are not within sight of the interchange, the road authority shall repeat the service signing in smaller size, on the intersecting highways, with arrows indicating the direction to the services. Distances to services not within the immediate interchange area should be shown. All approved symbols shall be permitted as alternates to word messages wherever motorist service signs are used, but intermixing of symbols and word legends shall not be permitted. Service signing should only be provided at interchanges where the motorist can return to the freeway and continue in the same direction of travel.

Where road authorities elect to provide service signing, there should be a statewide policy for such signing and criteria for the availability of the various types of services. The criteria should include the following:

1. Gas, Diesel, and/or LP-Gas
 - a. Vehicle services such as fuel, oil, lubrication, tire repair and water.
 - b. Restroom facilities and drinking water.
 - c. Continuous operation at least 16 hours per day, 7 days a week.
 - d. Telephone.
2. Food
 - a. Licensing or approval, where required.
 - b. Continuous operation to serve 3 meals a day, 7 days a week.
 - c. Telephone.
3. Lodging
 - a. Licensing or approval, where required.
 - b. Adequate sleeping accommodations.
 - c. Telephone.
4. Telephone
 - a. Continuous operation, 7 days a week.

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Figure 2-43. Motorist services signs.

5. *Hospital*

- a. Continuous emergency care capability, with a doctor on duty 24 hours a day, 7 days a week. A doctor on duty would include the following criteria and should be signed in accordance with the priority as follows:
 - (1) Physician on duty within the emergency department.
 - (2) Registered nurse on duty within the emergency department, with a physician in the hospital on call.

(3) Registered nurse on duty within the emergency department, with a physician on call from his office or home.

6. Camping

- a. Licensing or approval where required.
- b. Adequate parking accommodations.
- c. Modern, sanitary facilities and drinking water.
- d. Signs to be removed if operated on a seasonal basis only.

The service sign shall be mounted in an effective location, between the advance guide sign and the exit direction sign, in advance of the exit leading to the services available and should contain the interchange number. If the distance to the next point where services are available is greater than 10 miles, a sign "Next Services (xx) Miles" shown in figure 2-43, may be used as a separate panel mounted under the exit direction sign.

Freeway signs for services shall conform to the provisions for general motorist service signs covered in sections 2D-46, 2E-37 and as specified herein. Letter and numeral sizes for freeway design are given in table II-2. No more than six general motorist services are to be displayed on one sign (including appended panel). The qualified services available should be shown at specific locations on the sign, and the sign space normally reserved for a given service symbol or word is to be left blank when that service is not present, to provide flexibility for the future when the service may become available.

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The standard display of word messages recommended is FOOD and PHONE in that order on the top line, and GAS and LODGING on the second line. Where used, HOSPITAL and CAMPING should be on separate lines. Signing for DIESEL and LP-Gas service may be substituted for any of the General Motorist Services or appended to such signs. The International Symbol of Access for the Handicapped sign (D9-6) may be used for facilities that qualify (sec. 2D-46).

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When symbols are used for the motorist services they should be displayed as follows:

6 Services

1. TOP ROW-GAS, FOOD, and LODGING
BOTTOM ROW-PHONE, HOSPITAL, and CAMPING

4 Services

2. TOP ROW-GAS and FOOD
BOTTOM ROW-LODGING and PHONE

3 Services

3. TOP ROW-GAS, FOOD, and LODGING

Substitutions of other services for any of the services shown above may be made by placing the substitution in the lower right (2) or extreme right

(3) portion of the panel. An action message or an interchange number may be used as they are used for word message signs. The diesel fuel symbol (D9-11) or the LP-Gas symbol (D9-15) may be substituted for the symbol representing gas or appended to such assemblies. The information symbol may be substituted on any of the above configurations.

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At rural interchange areas where limited motorist services are available and where it is unlikely that additional services will be provided within the near future, a panel having one to three services (words or symbols) may be appended to ground mounted interchange guide signs. Should additional services become available at such locations in the future, the appended sign panel shall be removed and replaced with an independently mounted motorist service sign as described above. When sign panels are appended, the requirements of sections 2A-23 and 2F-17 shall apply.

A separate telephone service sign (sec. 2D-46) may be erected when telephone facilities are located adjacent to the freeway at places where telephones would not normally be expected.

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

In some locations, signs may be useful to indicate that services are not available.

2F-34 Rest and Scenic Area Signs (fig. 2-44)

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On the approach to rest areas, an advance guide sign shall be placed one mile or two miles in advance of the rest area. If the rest area has facilities for the physically handicapped (sec. 2D-46), the International Symbol of Access for the Handicapped Sign (D9-6) may be placed with or beneath the advance rest area sign. Between the advance guide sign and the gore of the rest area exit, there may be sign reading REST AREA which shall carry either an arrow or the words NEXT RIGHT as a part of the message.

At the rest area exit gore, there shall be a sign with a message REST AREA together with an arrow indicating the appropriate turn as shown in figure 2-44. A roadside area that does not contain restroom/toilets should be signed to indicate the major motorist service provided. An area with only parking would be signed PARKING AREA. An area with picnic tables and parking would be signed PICNIC AREA. All signs for rest areas shall have reflectorized white letters, symbols, and borders on a blue background.

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 supplemental panel may be used with one of the advance guide signs for rest areas that have tourist information and welcome centers. Before a supplemental panel is installed

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with tourist information or welcome center signs, a study should be conducted to make sure the additional information will not overload the motorist on this section of roadway.

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Rev.

Rest areas that have tourist information and welcome centers should be signed as discussed in section 2F-36.

Scenic area signing should be consistent with that specified for rest areas. Standard messages should read SCENIC AREA or SCENIC VIEW or the equivalent.



Figure 2-44. Freeway rest area gore sign.

2F-35 Tourist Information and Welcome Centers

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

The following criteria for signing should prevail regardless of the location of the tourist information center:

1. Tourist information center signs shall have a white reflectorized legend and border on a blue background.
2. The name of the operating agency, community, group, or enterprise shall not appear in the legend of any sign.
3. Continuous staffed or unstaffed operation 8 hours a day, 7 days a week is required.
4. Additional criteria as developed by individual States may be used.

If operated only on a seasonal basis, the signs indicating Tourist Info shall be removed during the off-seasons.

Welcome centers have been constructed within rest areas on the Interstate System and other freeways and are generally operated by a State.

The following criteria for signing should prevail:

1. Welcome center signs shall have a white reflectorized legend and border on a blue background.
2. Welcome centers should be located only at or near State boundaries.
3. The use of the State name is optional.
4. Continuous staffed operation 8 hours a day, 7 days a week is required.
5. Additional criteria as developed by individual States may be used.

For freeway rest area locations, additional signing criteria are as follows:

1. The locations for advance guide, exit direction, and gore signs are to meet service signing requirements.
2. If the signing for the tourist information or welcome center is to be accomplished in conjunction with the initial signing for the rest areas, the message on the advance guide sign should be "REST AREA, TOURIST INFO CENTER, _____ MILE(S) or "REST AREA, STATE NAME (optional), WELCOME CENTER _____ MILE(S)." On the exit direction sign the message should be "REST AREA, TOURIST INFO CENTER" with upward sloping arrow or "NEXT RIGHT;" or "REST AREA, STATE NAME (optional), WELCOME CENTER" with upward sloping arrow or "NEXT RIGHT."
3. If the initial rest area advance and exit direction signing is in place, these signs should include, on supplemental panels, the legend "TOURIST INFO CENTER" or "STATE NAME (optional), WELCOME CENTER." An alternate to this supplemental TOURIST INFO" legend is the Information Symbol sign (D9-10) which may be appended beneath the Rest Area sign. When incorporated in existing sign installations, such panels must be attached so as not to interfere with existing breakaway support action.
4. The gore sign should contain only the legend "REST AREA" with the arrow and not be supplemented with any legend pertaining to the tourist information center or welcome center.

For information centers located off the Interstate or other freeway facility, the following additional signing criteria shall apply:

1. Each State should have or develop a policy establishing the maximum distance the information center can be located from the interchange in order to be included on official signs.

2. The location of signing should be in accordance with requirements pertaining to service signing but as an alternate, the Information Symbol sign (D9-10) may be appended to the guide signs for the exit providing access to the information center. As a second alternative, it may be combined with general motorist services signing.

3. Signing along the crossroad should be installed to guide the motorist from the interchange to the information center.

A temporary sign may be used to advise motorists that at the next rest area there are special facilities for a "Safety Break." The legend "Safety Break Free Coffee" shall be in white on a blue background in one of two formats:

1. Using 10-inch Series D uppercase letters, the sign would be 4 feet in height with a minimum width of 12 feet or can be longer to match the width of the accompanying Rest Area or Tourist Information Center sign, or

2. Using 6-inch Series D uppercase letters, the sign would be 4 feet in width by 5 feet in height for attachment to one of the supports of the Rest Area or Tourist Information Center signs.

The temporary safety break sign should be so constructed that it may be hung beneath existing signs, attached to existing supports or independently mounted and shall be visible to motorists only during the time the facility is in operation and then removed. It shall not in any way affect the breakaway characteristics of the sign to which it will be attached.

2F-36 Radio Information Signing

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Rev. 4

Radio-Weather Information signs (D12-1) may be used on rural highways where weather commonly creates an undue hazard.

The criteria for signing for radio-weather information is as follows:

1. Radio-Weather Information signs shall have a white legend and border on a blue background.

2. Only the numerical indication of the radio frequency shall be used to identify a station broadcasting weather travel information.

3. A maximum of four frequencies may be shown on each sign.

4. The radio station should have a signal strength to adequately serve 70 miles along the roadway.

5. Signs should be spaced according to needs, but ordinarily not closer than 30 miles apart for each direction of travel.

6. A particular radio frequency may be shown a maximum of twice in one direction along the main line.

7. Only radio stations whose signal will be of value to the traveler and who agree to carry the two items below are to be identified on weather information signs.

a. Periodic weather warnings at no more than 15 minute intervals during periods of adverse weather.

b. Road condition information affecting the roadway being traveled once every half hour when required, supplied by an official agency having jurisdiction.

8. The stations to be included on the signs should be selected in cooperation with the association(s) representing major broadcasting stations in the area to provide (1) maximum coverage to all motorists on both AM and FM frequencies and (2) consideration of 24 hours a day, 7 days a week broadcast capability.

9. Additional criteria may be developed by individual states.

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

A Channel 9 Monitored sign (D12-3) may be installed as needed. Only official government agencies or their designee may be shown as the monitoring agency on the sign. This sign shall have reflectorized white letters and border on a reflectorized blue background.

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Rev. 2

For roadway rest area locations a smaller sign using a greater number of radio frequencies but of the same general design may be used. Rest area signs shall not be erected as to be visible from the main roadway.



D12-1



D12-2



D12-3

2F-37 Carpool Information Signing

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Rev. 4

In urban areas having carpool matching services it is considered in the public interest to permit the use of carpool information signs (D12-2) not only adjacent to preferential lanes but along any urban highway. As this is an information sign related to motorist services it should have a white legend on a blue background as defined in section 2A-11.

2F-38 Weigh Station

Weigh station signing on freeways shall be the same as that specified in section 2D-45, except for lettering size and the advance posting distance for the Exit Direction sign, which shall be located 1500 feet in advance of the gore. The recommended sign layout for freeway applications are shown in Standard Highway Signs.*

* Available from GPO, see page ii.

2F-39 Milepost Markers

Milepost signs shall be placed on all freeway facilities and shall conform to the general provisions for mileposts contained in section 2D-47. Markers shall contain 10-inch white numerals on 12-inch wide vertical green panels with a white border. Panels shall be 24, 36, or 48 inches in length for one, two, or three digits, respectively, and contain the word MILE. Milepost markers may be placed up to 30 feet from the edge of the pavement. Milepost markers located in line with delineator posts shall have the bottom of the marker at the same height as the delineator. The distance numbering shall be continuous for each route within any State except where overlaps occur. With overlapped routes, continuity shall be established for one of the routes which should also have continuity in the interchange exit numbering (sec. 2F-19). On the route without milepost continuity, the first marker beyond the overlap should be such as to indicate the total distance traveled on the route so that a motorist may have a means of correlating his travel distance between mileposts with that shown on his odometer.

2F-40 Route Markers and Trailblazers (figs. 2-45, 2-46)

As in the case of expressways (sec. 2E-20), route markers on freeways will ordinarily be incorporated as shields or other distinctive shapes into large directional guide signs. The use of independent markers on freeways will be limited primarily to route confirmation assemblies as shown in figures 2-36, 2-37, and 2-40.

The official route marker for the Interstate Highway System is the red, white and blue reflectorized distinctive shield adopted by AASHTO on August 14, 1957. Where the Interstate shield is displayed in an assembly or on the face of a guide sign with U.S. or State route markers, the Interstate numeral should be at least equal in size to these other route markers. The Interstate shield shall be fully reflectorized and shall conform to the standards set forth in Standard Highway Signs.*

The standard trailblazer assembly (sec. 2D-33) will usually have application on roads leading to a freeway. Where there are gaps between completed sections of a freeway route, the trailblazer assembly should be used to indicate the best routing between the termini of the completed sections.

The commonly used name or trailblazer symbol for a toll facility may be displayed on free sections of the Interstate System at:

1. The last exit before entering a toll section of the Interstate System;
2. The interchange or connection with a toll facility, whether or not the toll facility is a part of the Interstate System; and
3. Other locations within a reasonable approach distance of toll facilities when the name or trailblazer symbol for the toll facility would

* Available from GPO, see page ii.

FOR GUIDE SIGN USE



FOR INDEPENDENT USE



Figure 2-45. Typical shields.

FOR GUIDE SIGN AND INDEPENDENT USE



SPUR

Figure 2-46. Interstate Shields and Off-Interstate markers.

provide better guidance to drivers unfamiliar with the area than would place names and route numbers.

The toll facility name or marker may be included as a part of the guide sign installations on intersecting highways and approach roads to indicate the interchange with a toll section of an Interstate highway. Where needed for the proper direction of traffic, a trailblazer for a toll facility that is part of the Interstate System may be displayed with the Interstate trailblazer assembly.

2F-41 Miscellaneous Freeway Guide Signs

Certain other guide signs, in addition to those previously discussed, may be used on freeways if they do not interfere with signing for interchanges or other critical points. These include the types described in sections 2E-39 and 42.

Supplemental guide signs with a white legend and border on a brown background may be used when a park or recreational area is being signed as a significant destination for users of the Interstate and other freeway systems. The same color combination can be used for advance guide and exit direction signs for an interchange where the crossroad leads exclusively to a park or recreational area.

Where the crossroad is a numbered route or leads to other destinations, the advance guide and exit direction signs shall retain the white on green color combination. All gore signs shall remain with a white legend on a green background. The background color of interchange exit number panels shall match the color of the guide sign proper.

2F-42 Signing on Freeway Approaches

Freeway signing standards may have to be extended to the approach roads for some of the major interchanges. Frontage roads need not be signed to freeway standards, but otherwise should be consistent with requirements for roadways of their particular class.