THE AMERICAN ASSOCIATION
OF STATE HIGHWAY OFFICIALS

Manual for Signing and Pavement Marking

of the

NATIONAL SYSTEM of
INTERSTATE and DEFENSE HIGHWAYS

1970 Edition

Published by the

American Association of State Highway Officials
341 National Press Building
Washington, D. C. 20004

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Approved by Letter Ballot February 27, 1970

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In order to secure the necessary concurrence of the Federal Highway Administrator the milepost system of interchange numbering has been incorporated in this manual.

Approved by the Federal Highway Administrator
July 27, 1970

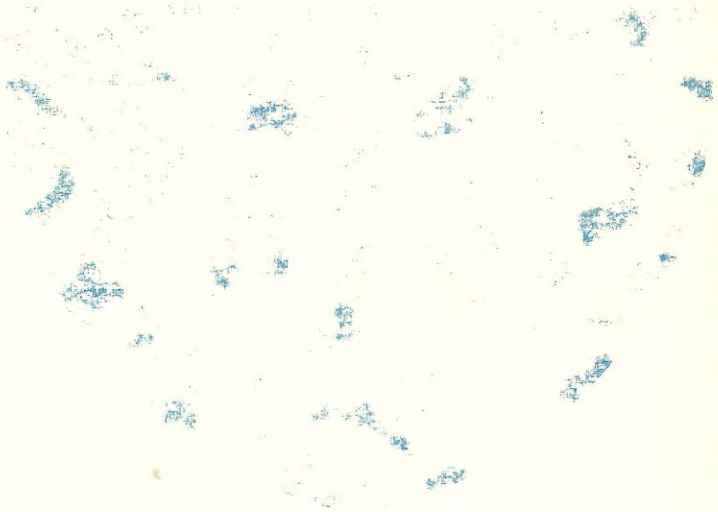
OFFICIAL MARKER

FOR

NATIONAL SYSTEM OF INTERSTATE

and

DEFENSE HIGHWAYS



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1. INTRODUCTION

THE National System of Interstate and Defense Highways, referred to as the Interstate System, is now in operation in many of the Nation's principal travel corridors. It was conceived and is being built primarily to provide rapid, convenient and safe travel between and through major traffic generating centers. Essential to realization of these benefits is a uniform and effective system of highway signing and marking that will be fully adequate for high-volume, high-speed motor vehicle traffic on modern freeways.

This third edition of the Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways carries forward the proved values set forth in previous Manuals and has been updated with the lessons of more than a decade of operating experience on the Interstate System.

2. OFFICIAL RESPONSIBILITIES

Legal Basis for Standards

Signing of the Interstate routes is the responsibility of the several State Highway departments, since all of the routes comprising the Interstate system are, or will be, official state highway sections. However, variations in signing practice from State to State would result in a confused traveling public. Therefore it is essential that a system of uniform signing be adopted and universally used on the Interstate System in all of the States and the District of Columbia. Section 12 of the Federal-aid Highway Act of 1944 (Section 109 (d)–Title 23 U.S.C.); Title I of the Highway Beautification Act of 1965 (Section 131 - Title 23 U.S.C.); Section 108 (i) of the Federal-aid Highway Act of 1956 (Section 109 (b) - Title 23 U.S.C.); and Title I of the Highway Safety Act of 1966 (Section 402–Title 23 U.S.C.) requires the concurrence of the Secretary of Transportation in the signing of Federal-aid projects as a means of achieving the desired uniformity. The purpose of this manual is to give effect to this provision by setting forth the basis for the desirable and required uniformity of practice.

3. INTERPRETATIONS: EXPERIMENTS AND CHANGE IN STANDARDS

Any request for interpretation or clarification of any part of this Manual or any request to experiment, or suggestions for a change in standards will be handled by a request by the Chief Administrative Officer of the State Highway Department through the normal channels of the Bureau of Public Roads in the same manner that would be used for any other part or component of a Federal-aid project.

Copies of any requests should be forwarded to the AASHO offices in Washington at the same time that the request is made to the Bureau of Public Roads.

4. INTERSTATE SIGNING PRINCIPLES

The development of a signing system for Interstate highways 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.

Correlation with Design

Sign installations are an integral part of the Interstate 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. Neglect of the correlation of signing and design may result in physical layouts that are plagued with chronic operating difficulties.

Quality Traffic Control

The cost of a modern and efficient signing and marking system is only a small fraction of the total highway cost. Installations commensurate with the superior traffic services of the Interstate System should always be provided. The cost difference between mediocre and superior traffic controls is not great. The standards set forth in this Manual are intended to provide adequate signing for this vital highway system.

5. APPLICATION OF STANDARDS

Limits on the Kinds of Signs

Interstate signs will be erected at the roadside and, where appropriate, over the roadway, to furnish drivers with clear instructions for orderly progress to their destinations. Highway routes, place names, mileage indications, interchange numbers, service facilities, and operating rules are among the items of information that must be clearly identified.

Only official signs, under the direction and control of the State highway department and necessary for the orderly operation of the highway facility shall be installed. Care should be exercised to avoid a proliferation of informational signs. A consistent State policy that recognizes safety and aesthetic features shall govern the signing of all places of general assembly or other destinations of major traffic significance. Signs giving information about churches, civic clubs, "safety" slogans, and the like, shall not be erected.

Other needed signs and devices, not referred to in detail in this Manual, shall follow the general provisions for Interstate signing and marking and conform in such respect as to color, reflectorization, letter size and type as set forth in this Manual.

Compliance on Existing Free Roads and Toll Roads

Existing free roads and toll roads incorporated in the Interstate System are not required to comply with the standards defined herein until major replacements are necessary. However, full uniformity in traffic control devices is a national goal, and the earliest practicable compliance with the standards throughout the Interstate System should be obtained.

Manual on Uniform Traffic Control Devices*

References herein to the Manual on Uniform Traffic Control Devices are to the latest edition prepared and approved by the American Association of State Highway Officials, the Institute of Traffic Engineers, the National Committee on Uniform Traffic Laws and Ordinances, the National Association of Counties, the National League of Cities, and concurred in by the Federal Highway Administrator.

*For sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402

6. GENERAL CHARACTERISTICS OF INTERSTATE HIGHWAY SIGNING

Interstate highway signing should always be considered and developed as a planned system of installations. Competent engineering study will be necessary for proper solution of the problems of many individual locations, but, in addition, consideration of an entire route is frequently 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 improperly placed to accomplish the purpose intended.

It is imperative that drivers be confronted with consistent and effective signing not only on the approaches to interchanges, but as they drive from one State to another, as well as when driving through rural or urban areas. Geographical, geometric, and operating factors regularly create significant differences between urban and rural Interstate conditions, and the signing must take these into account.

Urban Conditions

The standards prescribed for sign letter size on the Interstate System 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 as logically justify different sign standards.

Urban conditions are characterized not so much by reason of physical city limits or other arbitrary boundaries, as by some or all of the following features:

(a) Mainline roadways with more than 2 lanes
(b) High traffic volumes on the through roadways
(c) High volumes of entering and leaving traffic at certain interchanges
(d) Interchanges closely spaced
(e) Roadway lighting at some or all interchanges, and sometimes continuous lighting
(f) Three or more interchanges serving the major city
(g) A loop circumferential or spur serving a sizeable portion of the urban population.

The distinctive features of urban signing are:

(a) Use of interchange sequence signs.
(b) With relatively closely spaced interchanges, a full complement of post-interchange signs is usually not desirable. The frequency of application should only be adequate to supply needed information to travelers and to satisfy the minimum requirements of law enforcement.
(c) Route markers – For reassurance and orientation, the route marker is the most important of the post-interchange signs. However, if the sign for through traffic on an overhead assembly already contains the Interstate route marker, the post-interchange route marker often may be omitted, and it should be if interchanges are tightly spaced.
(d) Service signing – In urban areas, this class of signing normally should be omitted.
(e) Location of advance guide signs – Placement of advance guide signs at appropriate distances should not be neglected, even though the two-mile and one-mile notices may have to be displayed at distances closer to the interchange, with appropriate adjustments in the legend.
(f) Overhead sign installations – Restricted lateral clearance and traffic requirements force the more common use of overhead signs on roadway structures and independent sign supports. These locations should be selected with care to fulfill information needs of the driver.

Rural Conditions

Rural signing ordinarily benefits from greater distances between interchanges. This 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 the Interstate System are subjected to high speed traffic. The typical absence of traffic in adjoining lanes and on entering or leaving ramps often adds a monotony to driving that increases the importance of signs and markings that call for

decision or action. Accordingly, and especially where the longitudinal distances between interchanges may be generous and the alinement is relatively unchanging, pavement markings and roadside delineation should be positioned for their best effect on drivers.

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 system-wide uniformity and yet contain provisions flexible enough for most signing problems. Minor departures may be necessary when symbols are employed.

Diagrammatic Signing

In certain instances there appears to be something lacking in interchange signing which, in turn, may cause confusion to the driver. The use of diagrammatic signing at interchanges is a rapid way of conveying to the driver the maneuvers which are required to reach a given destination. That value is especially proven at large complex interchanges where a motorist may be confronted with multiple exits, both left and right off-ramps, or where he is required to make more than one maneuver to reach his chosen destination.

No attempt is being made to develop standards for such signing in this Manual. However, the Highway Departments are encouraged to develop and experiment with diagrammatic signing and to carefully evaluate installations where it is used so that specific standards may be incorporated in future editions of this Manual.

Every effort should be made to determine how compact they can be and still effectively convey the necessary information to the driver. Samples of such signs are shown in Figures 1 and 2. This sign may be either a ground-mounted or overhead installation.

Abbreviations

Abbreviations on Interstate signs are to be kept to a minimum. 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. This has no application to branch routes

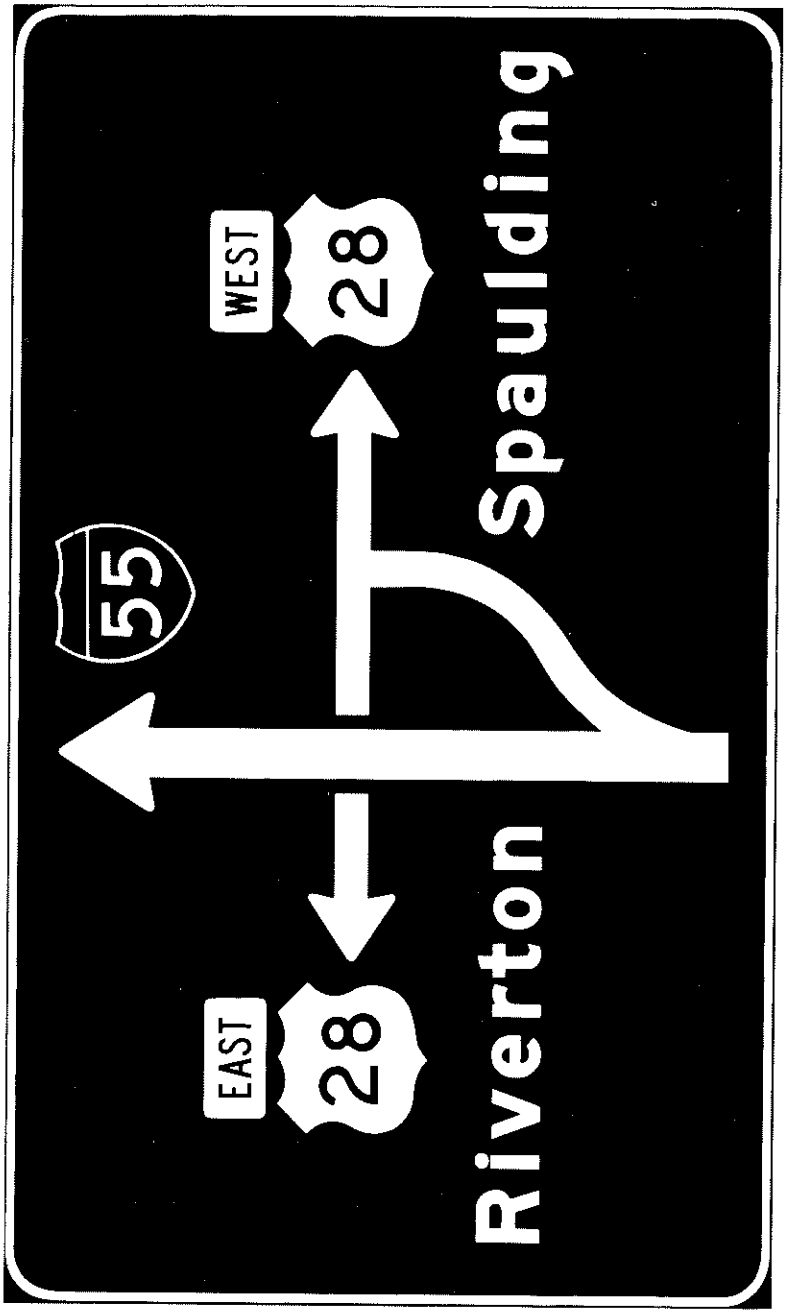


Figure 1 — Sample of Diagrammatic Sign for Diamond Interchange

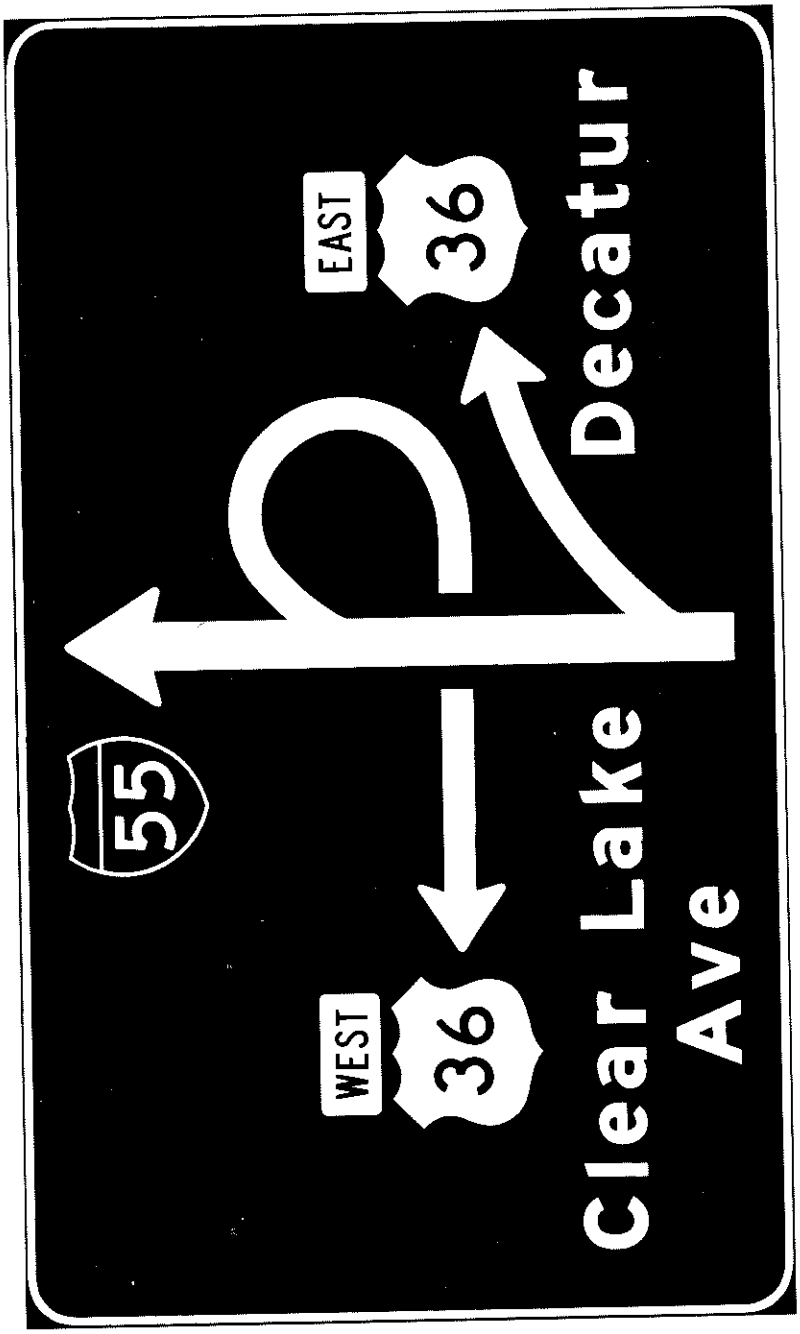


Figure 2 — Sample of Diagrammatic Sign for Cloverleaf Interchange

such as 70 N or 70 S where the suffix letter is an integral part of the route designation, or to interchange numbers that have letters for cardinal direction indications following the exit number.

7. MESSAGES AND SIGN DISPLAYS

The Interstate System offers superior traffic service to population centers located on or near it. For this reason, the course of the Interstate route and the major destinations along it must always be clearly identified. Selection of sign legends should be made with a view toward maintaining the best orientation possible for drivers. Continuity in successive sign messages and consistency with available map information are essential.

Control Cities

A control city is a city on or near the Interstate System whose general location can be easily identified by users of that System and whose population and character are generators of sufficient traffic to be a focal point for Interstate travel.

Although the broad criteria for the choice of control cities should be followed in all jurisdictions, conditions obviously vary among the States. Consequently, the development of national guidelines such as population, distance from the System, or between control cities, can only be accomplished by cooperative interstate action. Accordingly, each State should determine its list of control cities in cooperation with adjacent States with the objective of achieving continuity in signing for the entire System. Any given route should have the same control cities for both directions of movement, although "satellite" cities may be selected for movements outbound from a major urban area, while only that area will be signed for approaching traffic.

The determination of control cities will be important to the quality of service provided by the Interstate System and control city legends shall be used in the following situations:

a. Junctions of Interstate routes or other major freeways;
b. Separation points of overlapping Interstate routes;
c. On directional signs on major intersecting routes carrying a significant volume of through traffic to guide traffic entering the Interstate System;
d. As an alternate to the "THRU TRAFFIC" message;
e. On the bottom line of mileage signs.

Limit on Destination Legends

Two destinations and the directional copy are as much as most drivers will be able to comprehend readily. Therefore, on any single major guide signs not more than two destination names shall be shown. (Destinations include place names and street or highway names.) Additional copy, not exceeding three lines may include interchange numbers, route numbers, arrows, cardinal directions, and exit instructions. This limitation applies to both ground and overhead installations. Where two or more signs are placed on the same supports, it is desirable to limit destination or names to one per sign, or to a total of three in the display. Population figures or other similar information on exit guide signs presents a number of continuing difficulties and should not be used.

Routing to a Given Destination

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

8. OVERHEAD SIGN INSTALLATIONS

The operational requirements of the Interstate Highway System are such that overhead signs will have value at many important locations. Information relative to the design of sign structures has been standardized by committees of the American Association of State Highway Officials, and other agencies, and a "Specifications for the Design and Construction of Structural Supports for Highway Signs" is now available.*

Application

The factors justifying the erection of overhead sign displays are not definable in specific numerical terms, but the following conditions deserve consideration:

1. Traffic volume at or near capacity
2. Complex interchange design
3. Three or more lanes in each direction
4. Restricted sight distance
5. Closely spaced interchanges

*Specifications for the Design and Construction of Structural Supports for Highway Signs, American Association of State Highway Officials, 341 National Press Bldg., Washington, D. C. 20004, $0.50 per copy.

6. Multi-lane exit roadways
7. Large percentage of trucks
8. Background of street lighting and/or advertising signs
9. High speed of traffic
10. Consistency of sign message location through a series of interchanges
11. Insufficient space for ground signs
12. Junction of an Interstate and freeway route or of two Interstate highway routes
13. Lane drops
14. Left exit ramps

These factors are to be evaluated to arrive at decisions to erect overhead signs. The existence of any one or more of the conditions listed does not automatically dictate the use of signs overhead. Rather, overhead signs have application in lieu of or as an adjunct to ground signs when competent engineering study indicates that they are needed. Some of the conditions listed above can be made less critical by careful coordination of design and signing layouts.

Bridges for Sign Supports

An overcrossing structure will sometimes serve for the support of overhead signs, and under some circumstances, may be the only practical location that will provide adequate viewing distance. Such use of a structure as a sign support will eliminate the need for the foundations and sign supports along the roadside. On an urban freeway where overhead crossings are closely spaced, for example, it may be feasible to place some signs on the bridges. Butterfly-type signs and other overhead sign supports should not be erected in gores or other exposed locations.

9. SIGN LEGEND AND SPACING

Letter style and height, and arrow design have been standardized for the Interstate System to assure uniform and effective signing. With all Interstate highway signs, the message dimensions shall be determined first, and the outside sign dimensions secondarily. The prescribed numeral and letter sizes for principal types of guide signs appear in Table I.* Other sign letter size requirements not specifically identified elsewhere in this Manual should be guided by these specifications.

*See page 18 of this manual.

TABLE I

ADVANCE GUIDE, EXIT DIRECTION, AND OVERHEAD GORE SIGNS

	Junction	Major	Intermediate	Minor	Overhead
Exit Number					
Word	12″	12″	12″	10″	12″
Numeral	18″	18″	18″	15″	18″
Letter	12″	12″	12″	10″	12″
Route Marker					
Interstate					
Numeral	24″ 18″	—	—	—	18″
Shield					
(1-2 Digit)	48″x48″|36″x36″	—	—	—	36″x36″
(3 Digit)	60″x48″|45″x36″	—	—	—	45″x36″
U.S. or State					
Numeral	24″|18″	18″	18″	12″	18″
Shield					
(1-2 Digit)	48″x48″|36″x36″	36″x36″	36″x36″	24″x24″	36″x36″
(3 Digit)	60″x48″|45″x36″	45″x36″	45″x36″	30″x24″	45″x36″
or **Alternate**					
(Ex: U.S. 56)					
Initials	15″	15″|12″	12″	10″	12″
Numeral	18″	18″|15″	15″	12″	15″
Cardinal					
Word	15″	15″|12″	12″	8″	12″
Name of Place, Street or Highway					
Word	20″|15″	20″|15″	16″|12″	13.3″|10″	16″|12″
Distance					
Numeral	18″	18″|15″	15″	12″	15″
Fraction	12″	12″|10″	10″	8″	10″
Word	12″	12″|10″	10″	8″	10″
Action Message (Exit Direction Signs)					
Word	12″	12″	12″	8″	12″

TABLE 1 (cont'd.)

GROUND MOUNTED GORE SIGNS	
At junctions	
Cardinal direction	12"
Route marker	36"x 36"
At major and intermediate interchanges	
Word	12"
Numeral	18"
At minor interchanges	
Word	8"
Numeral	10"
Letter	8"
THRU TRAFFIC SIGNS	
"Thru Traffic" Message	
Word	15"
Destination Message	
Word	16"|12"
Route Marker as Message	
Cardinal Direction	12"
Route Marker	36"x 36"
SUPPLEMENTAL GUIDE SIGNS	
Exit Number	
Word	10"
Numeral	15"
Letter	10"
Place name	13.3"|10"
Action message	10"
INTERCHANGE SEQUENCE SIGNS	
Exit Number	
Numeral	13.3"
Letter	8"
Word	13.3|10"
Distance Numeral	13.3"
Fraction	10"
"NEXT - EXITS" Signs	
Place name	13.3"|10"
NEXT - EXITS	10"
"EXITS FOR" Signs	
"EXITS FOR'	12"
Place name	16"|12"
Cardinal Direction	12"
Route Marker	36"
Exit Number	
Numeral	12"
Letter	10"
Mileage Signs	
Word	8"|6"
Numeral	8"
General Motorist Services Signs	
Exit Number	
Word	10"
Number	15"
Letter	10"
Services	10"
Rest Area and Scenic Area Signs	
Word	12"
Distance	
Numeral	15"
Fraction	10"
Word	12"
Action Message	
Word	12"
Mileposts	
Numeral	6"
Boundary and Orientation Sgins	
Word	8"|6"
"NEXT EXIT" and "NEXT SERVICES" Signs	
Word	8"
Numeral	8"
"EXIT ONLY"	
Word	10"

All names of places, streets, and highways on guide signs shall be composed of lower-case letters with initial upper-case letters. The initial letters shall be 1-1/3 times the "loop" height of the lower-case letters. Other legend on guide signs shall be in capital letters.

Symbols

In those cases where symbols are used as a part of the sign legend, a special effort should be made to balance the legibility of the symbol with the rest of the sign legend. In general, symbols and interchange diagrams should be straight forward and as simple as possible. They need not be fully indicative of the exact roadway layout, nor should their size dictate an unreasonably large sign area.

Standard Alphabets

Suitable designs for the capital and lower-case alphabets are available, together with tables of recommended letter spacing, from the Federal Highway Administration, Washington, D. C. 20591. It is intended that the initial letters and the numerals used will be Series E of the Standard Alphabets for Highway Signs modified by widening the stroke width to approximately one fifth of the letter (or numeral) height.

Interline and Edge Spacing

Interline spacing between the top and bottom of capital or upper-case letters should be approximately three-fourths of the average of the heights of the capital or upper-case letters in adjacent lines of letters.

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

10. 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 6 feet by 10 feet the border should have a width of approximately 2 inches. For guide signs smaller than 6 feet by 10 feet, a width of approximately 1¼ inches may be used, but the

width should not generally exceed the stroke width of the major lettering of 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.

11. COLOR, REFLECTORIZATION, AND ILLUMINATION

Color

Guide signs on the Interstate System shall have white letters, symbols, and borders on a green background, except route markers, signs with blank-out messages, signs for service information and rest areas, for park and recreational areas, and the unique signs used at State lines. Route markers shall have standard colors and design in accordance with requirements of the Manual on Uniform Traffic Control Devices. Signs for service information and rest areas shall have white letters, symbols and borders on a blue background. Signs in the vicinity of parks or recreational areas may have white letters, symbols and borders on a brown background where these areas are a significant destination for users of the Interstate System. State line signs are not specifically limited as to color except that they shall avoid colors or combination of colors that make a gaudy display.

Color Tolerance Charts

Signs shall conform to the Standard Interstate colors prescribed in this Manual. The Federal Highway Administration has produced a series of Color Tolerance Charts for Highway Yellow, PR Color #1; Highway Red, PR Color #2; Highway Blue, PR #3; Highway Green, PR Color #4; and Highway Brown, PR Color #5, respectively. The charts shall be the standards for the colors used on the Interstate System signs.*

Reflectorization

White letters, symbols, and borders shall be reflectorized in all cases. The background of warning and regulatory signs shall be reflectorized or illuminated. The background of guide signs may

*Available from Acquisition Section, Clearinghouse, U.S. Department of Commerce, Springfield, Virginia 22151, PB 169-553.

be reflectorized or nonreflectorized and either type may be illuminated as determined by economic and effectiveness factors. However, the mixing of signs with reflectorized and nonreflectorized backgrounds in the same general area should be avoided. The background of all overhead signs that are not internally illuminated shall be reflectorized.

Illumination

In general, where traffic volumes are light and there is no serious interference from extraneous light sources, reflectorized signs will usually be adequate. However, much driving at night on the Interstate System is done with low beam headlights, and the amount of headlight illumination incident to an overhead sign display is relatively small. Therefore, all overhead sign installations should normally be illuminated, where practicable. Since overhead signs are special and important installations their continued effectiveness in case of a power failure is especially important. For this reason all letters, symbols, and borders of overhead signs must be reflectorized; background reflectorization should be consistent with other guide signs in the same area. Technological developments have produced a variety of types of illumination for highway signs. The type chosen should provide effective and reasonably uniform illumination of the sign face and message. The location of external lighting fixtures should not impair normal viewing of the sign. Illumination from below avoids undesirable daytime shadows on the face of the sign.

Internal Sign Illumination

Internally illuminated signs having translucent faces are especially effective and, despite their typically higher cost, may justify consideration in some installations. Where internal illumination is used, the sign colors shall appear essentially the same by night and by day.

12. SIGN ARROWS

Application

Arrow aiming is important. On all guide signs, both overhead and ground mounted, used to direct traffic into an exit roadway, arrows shall point upward at an angle representative of the alignment of the exit roadway.

Downward pointing arrows shall be used only on overhead

guide signs to prescribe the use of specific lanes for traffic bound for the destination(s) and/or route(s) indicated by the arrows. In such cases a separate arrow shall be centered over each lane serving the destination appearing on the sign.

If the lane that is to be used by exiting traffic is also to be used by through traffic, the bottom line of the overhead sign shall contain the legend "NEXT RIGHT" (LEFT). Unusual design conditions may require the use of directional messages such as "STRAIGHT AHEAD."

Design

The standard arrows for Interstate signs are illustrated in Figure 3. The upward pointing arrow will be most commonly used and is designed for placement alongside or below one or more lines of sign message. The dimensions of the upward pointing arrow are to vary with the letter style and height as indicated by the tabulations on Figure 3. The length of the shaft should be adjusted to fit one or more lines of copy as appropriate. The downward pointing arrow is the standard design for all down arrows located over the roadway.

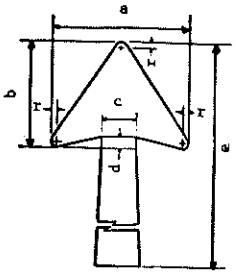
Experimental diagrammatic signing for interchanges will also require some form of arrow displays. These should approximate the interchange roadway pattern, or the necessary part of it, in a clear, understandable manner without specific regard for the standard arrow designs.

13. SIGN PLACEMENT AND CLEARANCE

Viewing Factors

Proper placement of signs, either overhead or on the ground, can greatly enhance the effectiveness of an installation. Sign faces shall always be oriented to minimize specular reflection by a slight turning away from the roadway. Decisions on the vertical, longitudinal and horizontal 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.

On sections to be lighted or already with existing lighting, signs and lighting fixtures should be located to provide adequate view of the signs and effective roadway illumination.

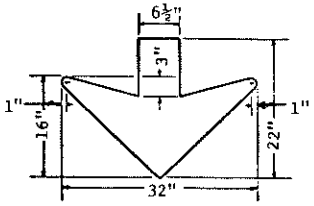


"UP" Arrow

Dimensions of Arrow When Used With Various Letter Sizes

Letter Size	Arrow Dimensions In Inches					
	a	b	c	d	e*	r
8" Cap.	15-1/8	11-9/16	3-3/4	1-5/16	17-25	13/16
13 1/3" U.C., 10-12" Cap.	18-1/4	14	4-1/2	1-1/2	20-30	3/4
16" U.C.	22-1/4	17	5-3/8	1-3/4	25-35	1

* Taper of $\frac{1}{2}$" per ft. should be held constant for longer or shorter shaft lengths.



"DOWN" Arrow

Figure 3 — Design Details of Standard Arrows

Vertical Clearance

In ground installations, directional 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 the secondary sign at least 5 feet above the level of the pavement edge.

When signs are removed 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 route markers and warning and regulatory signs 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 structure, 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 need not be greater than one foot in excess of the structure clearance. 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.

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 a sign or sign structure exposed to traffic within the applicable vertical clearance dimension be less than 2 feet beyond any surface prepared for normal or emergency travel of vehicles.

Where feasible, signs and sign structures should not be located exactly at this minimum distance, 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. Where appropriate, guardrail should be installed for the protection of motorists at these locations.

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.

14. INTERCHANGE CLASSIFICATIONS

For signing purposes, interchanges are classed as junctions, major, intermediate, or minor interchanges as follows:

Junctions

Junctions are interchanges with other Interstate highways and with all other freeways and toll roads.

Major Interchanges

Major interchanges are interchanges other than junctions, such as high volume multi-lane highways, principal urban arterials, and major rural routes where the interchanging traffic is heavy or includes many drivers unfamiliar with the area.

Intermediate Interchanges

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

Minor Interchanges

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

15. INTERCHANGE AND EXIT NUMBERING

Numbering System

The numbering of interchanges on the Interstate System is a means of providing drivers with simple, concise directional information. All interchanges and exit ramps, including those between intersecting interstate routes, shall be numbered. Interchange numbers shall begin at the south state line on north-south routes, and at the west state line for east-west routes.

Where a route originates within a state, the southern-most or western-most 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. Typical interchange numbering schemes are shown in Figures 4 through 6.

AASHO has previously adopted a policy approving the consecutive numbering system in designating interchanges. Federal regulations adopted under the Highway Safety Program will require the use of the milepost system. The milepost number will be shown on the major panel or sign and the consecutive numbering may be shown on a supplementary panel if the state wishes to retain the consecutive numbering system.

Circumferential Routes

For circumferential Interstate 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 Interstate route, or some other conspicuous landmark on the circumferential near a south polar location. (See Figure 4)

Loop and Spur Routes

The interchange numbers on loop Interstate 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 Interstate route. (See Figure 5)

Overlapping Routes

Where Interstate 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 6)

Interchange Number Panel Design

The interchange number (or numbers) shall be displayed in conjunction with each advance guide sign, or signs and the exit direction sign. Exit numbers may be used with supplemental guide signs and service signs. The exit number should be on a separate panel attached to the post either at the top or bottom of the sign. In the case of the gore sign or the interchange sequence sign the exit number should appear within the border of the sign (Figure

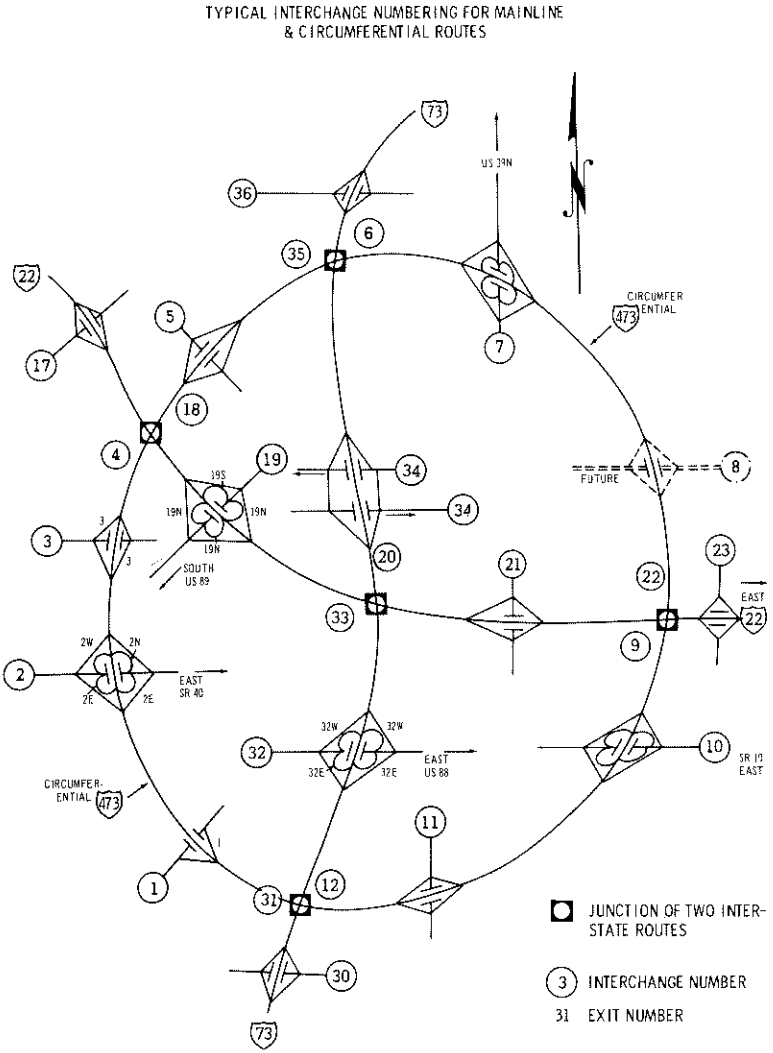


Figure 4 — Typical Interchange Numbering for Mainline & Circumferential Routes

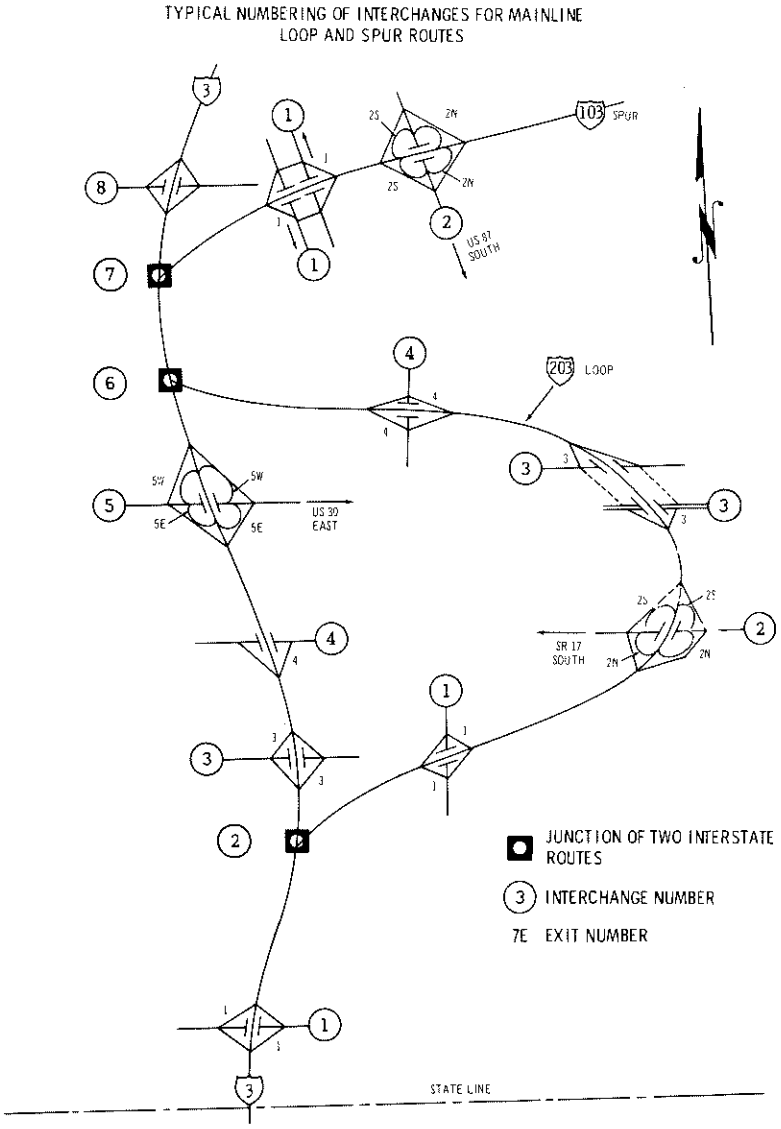


Figure 5 — Typical Numbering of Interchanges for Mainline Loop and Spur Routes

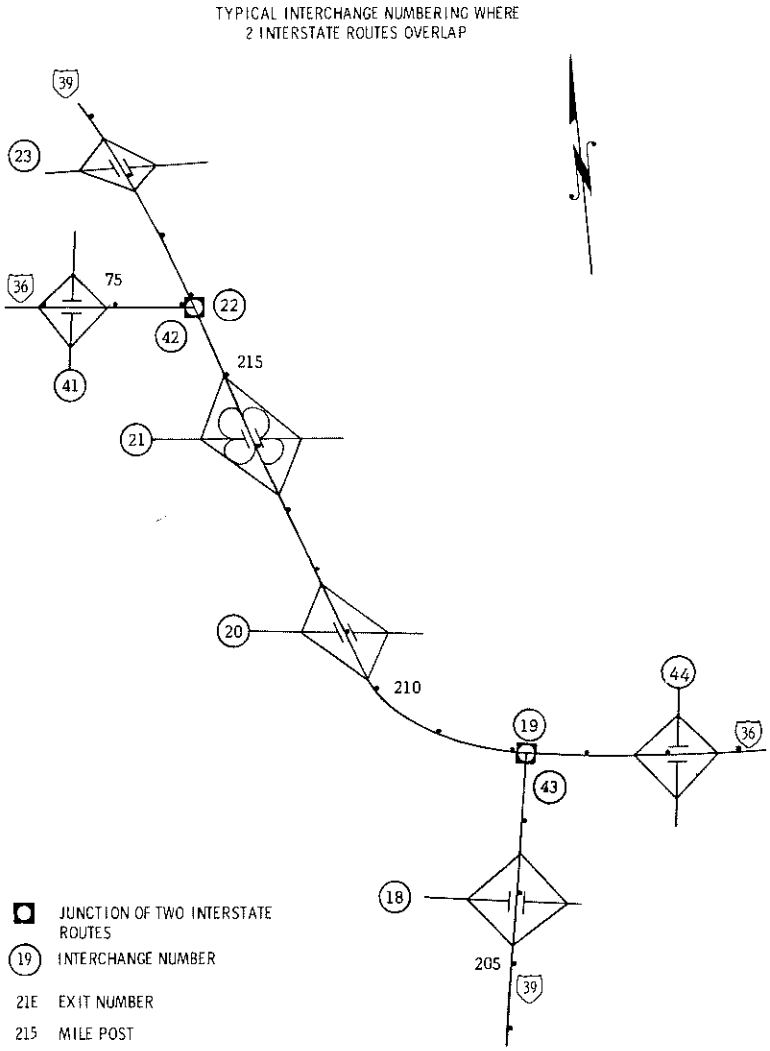


Figure 6 — Typical Interchange Numbering Where 2 Interstate Routes Overlap

22). The legend shall be white reflectorized letters and numerals on a green background.

The letter and numeral size for interchange and exit legends on the advance guide, exit direction and gore signs shall be as shown in Table I.

16. GENERAL REQUIREMENTS FOR SIGNING VARIOUS CLASSES OF INTERCHANGES

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. Thus, signing layouts must be consistent for each type of interchange. It is intended that the basic principles illustrated in Figures 9 through 13 be followed as closely as possible to preserve a pattern of uniformity throughout the Interstate System. Where unusual geometric features exist, variations in signing layout are permissible, but should be held to a minimum. The theoretical gore point is the intersection of the outer edge of the through pavement and a line projected along the adjacent edge of the exit roadway. (See Figure 45)

The interchange layouts shown in the figures generally illustrate only the major guide signs for one direction of traffic on the through road and on the crossroad. Significant features of the signing layout for each of the more frequent types of interchange are as follows:

Junctions

Interchanges between Interstate routes or between Interstate routes and other major freeways are defined as "Junctions" in Section 14 regardless of geometric design type.

Junctions are major decision points, where the effect of taking a wrong ramp cannot be easily corrected by reversing direction on the crossroad or re-entering to continue on the intended course. The sign messages should contain only the route shield, cardinal direction, and the name of the next control city on that route, unless routes overlap in a way that requires the naming of two control cities. (Figure 7)

Overhead signs are required at a distance of one mile and at the theoretical gore of each connecting ramp, and may be used at

JUNCTION OF TWO INTERSTATE ROUTES

Figure 7 — Junction of Two Interstate Routes
Note: Interchange numbers have not been shown although they are required for this type of interchange

the two-mile point and in the normal location of exit direction signs. All arrows should point downward unless a diagrammatic representation of the interchange layout requires otherwise. The name of the control city and/or the arrow may be omitted on signs which indicate the straight-ahead continuation of a route. A ground mounted sign showing the route shield and cardinal direction may be mounted in the gore, in the position normally occupied by the ground mounted exit gore sign.

Warning signs with the message "RAMP SPEED _____ MPH" shall be used where appropriate, rather than "EXIT SPEED _____ MPH" as on other type interchanges.

Cloverleaf Interchanges

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-sloping arrow on the sign for that exit and the legend "NEXT RIGHT" on the sign for the second exit. (Figure 8). Alternately, the exit message may be included on a single sign, with only one route shield. (Figure 9). A sign may be placed over the left lane(s), with the name of the next control city and/or the Interstate route shield with or without a cardinal direction, or "THRU TRAFFIC" may be used as an alternate message.

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

Exit numbers shall indicate the cardinal directions of the cross route by appropriate initials. The plural "EXITS" shall be used on the advance guide signs, and the cardinal initials of exit numbers shall be in the same order as the place names.

Cloverleaf Interchanges With Collector-Distributor Roadways

The advance guide signs shall use the singular "EXIT" and cardinal initials shall be omitted from the exit numbers. Signing on the collector-distributor roadway shall be the same as on a cloverleaf interchange. (Figure 10).

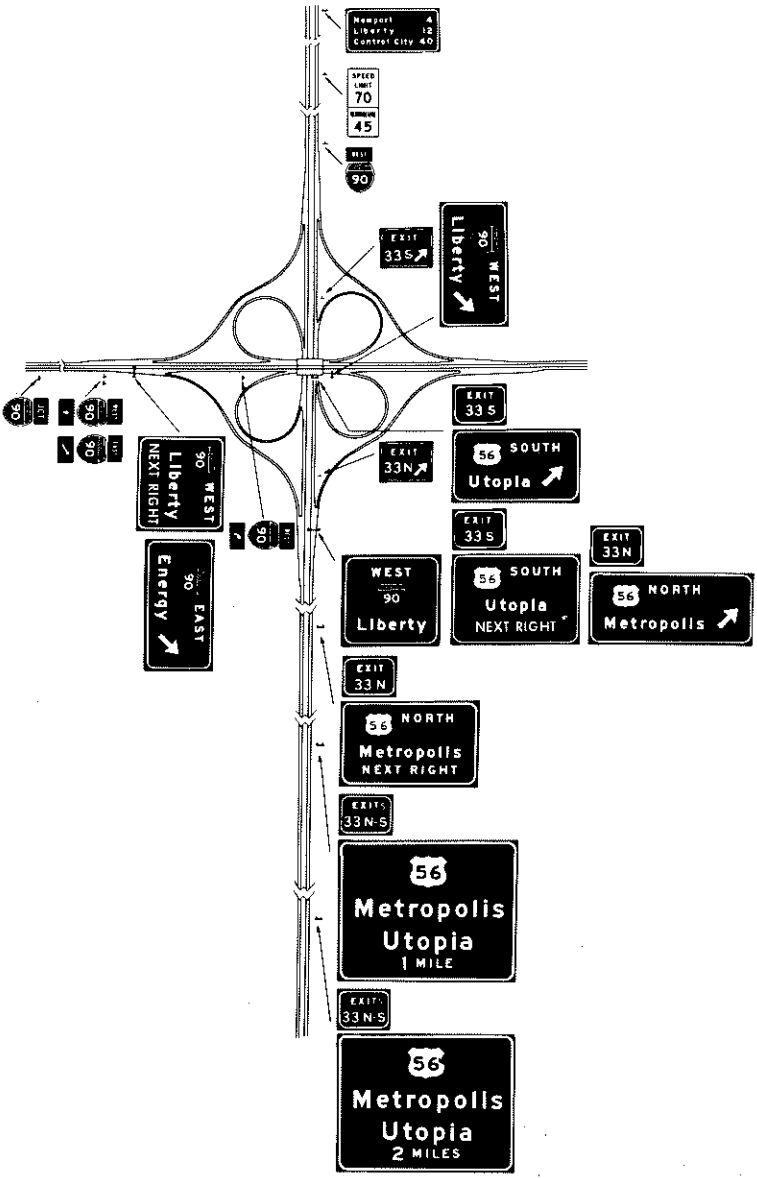


Figure 8 — Cloverleaf Interchanges

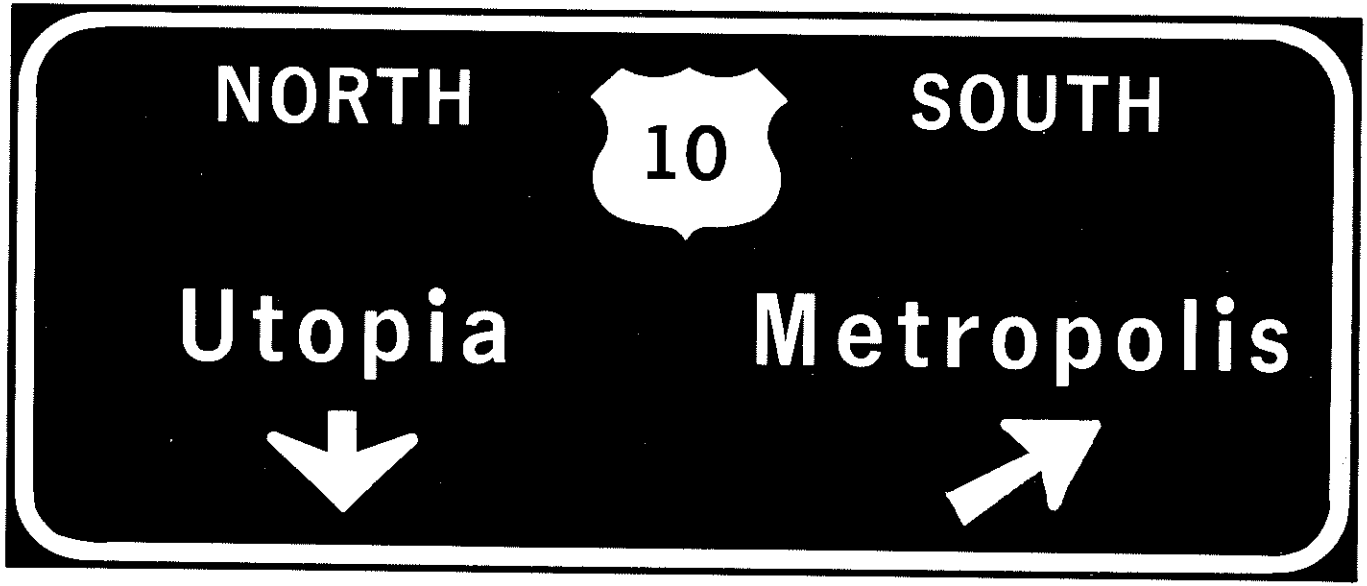


Figure 9 — Single Sign as an Alternate to the Two Right Hand Signs Shown Overhead at the Gore at Figure 10

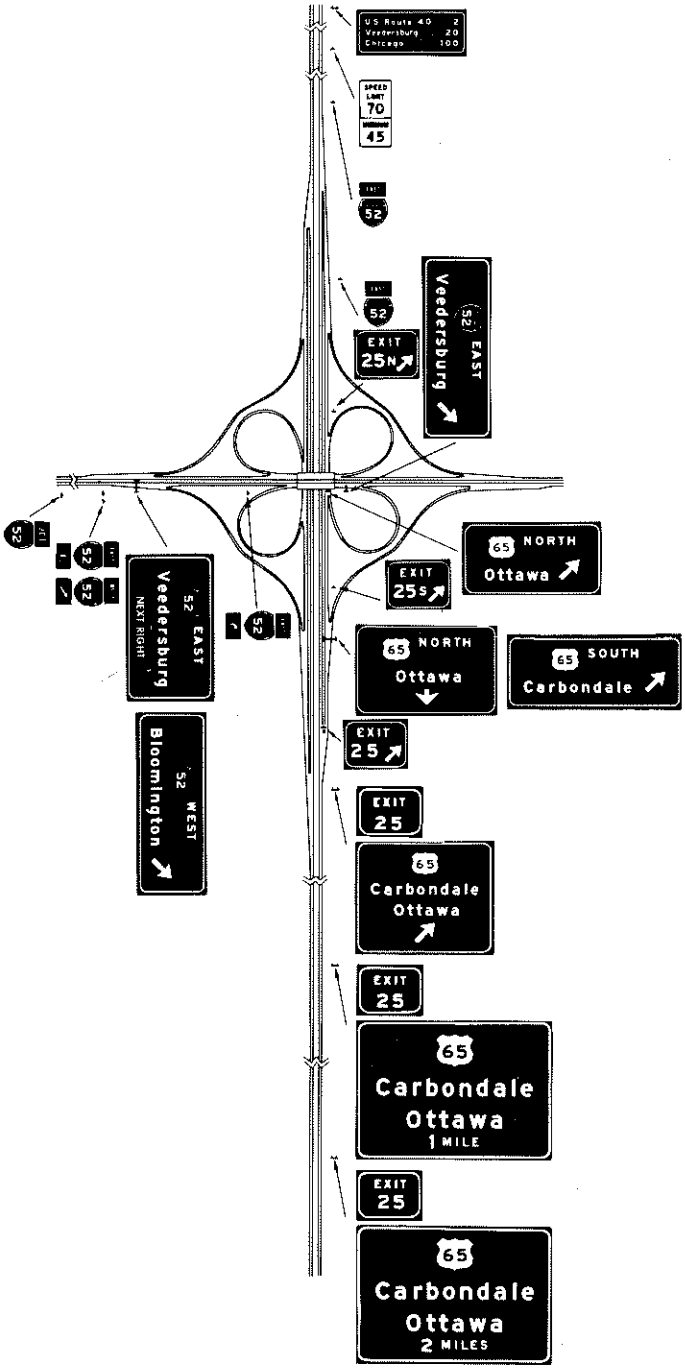


Figure 10 — Full Cloverleaf Interchange with Collector-Distributor Roads

Diamond Interchanges

The signing layout for all interchanges having only one exit ramp in the direction of travel should be similar, regardless of the interchange type. The singular message "EXIT" shall be used on advance guide and exit directional signs. Exit numbers shall not include the cardinal initials corresponding to the direction of the cross route. Only one destination name is necessary, although two may be used. (Figure 11)

Partial Cloverleaf Interchange

As in Figure 11, the overhead exit gore sign should be placed on the structure if the Interstate passes under the crossroad and the exit roadway is located beyond the structure. A ground mounted gore sign may also be used. (Figure 11)

Urban Diamond

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 interchanges serve the same community, the interchange sequence sign is useful in helping the motorist make his choice of exits, and may be incorporated in the signing layout as shown. (Figure 12)

Closely Spaced Interchanges

When a series of interchanges is closely spaced, the advance guide sign for the next interchange may be mounted on an overhead structure at the theoretical gore point for the preceding interchange. Information for more than two exits shall not be shown on such signs.

Interchange sequence signs should be utilized, showing exit numbers, street names and distance for the next three exits. (Figure 13)

Minor Interchanges

The minimum signing for minor interchanges is prescribed as a lower standard because these interchanges customarily serve low volumes of local traffic only. The sizes of messages are shown in Table I.

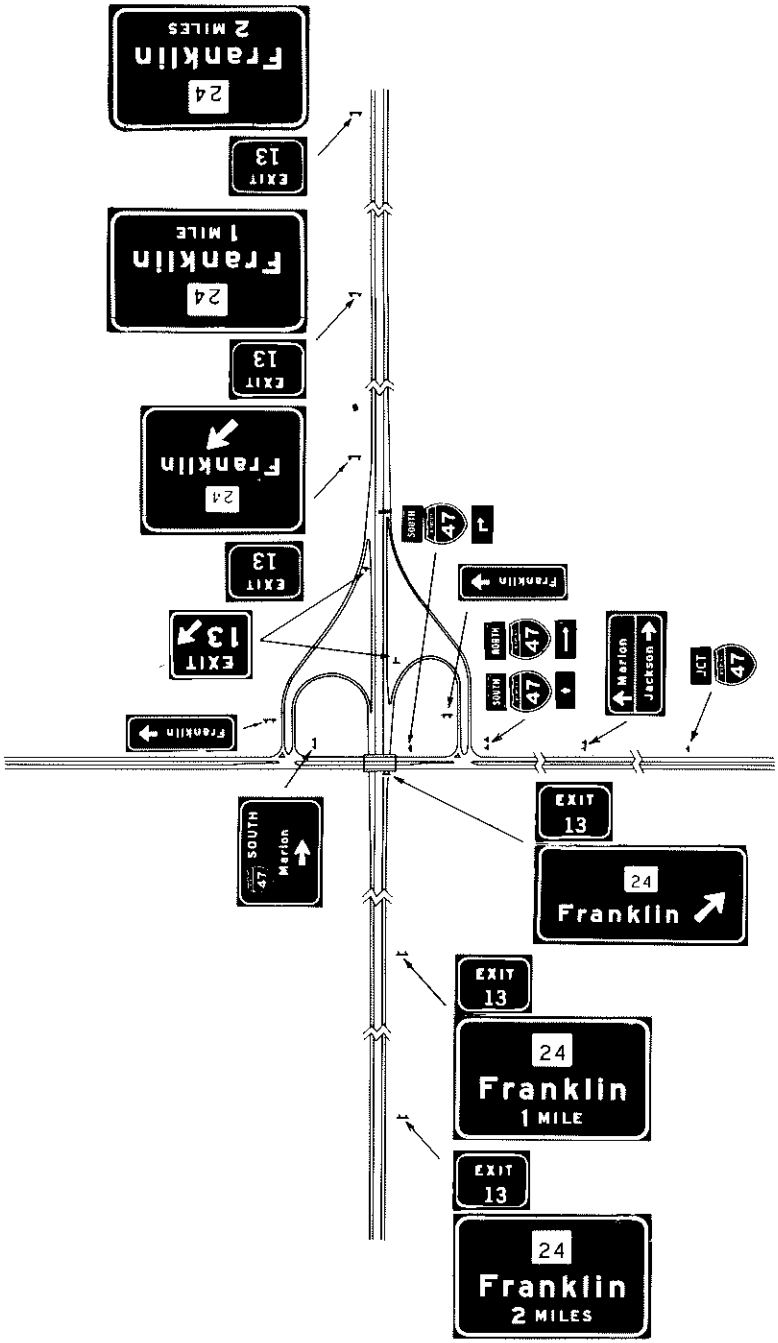


Figure 11 — Partial Cloverleaf

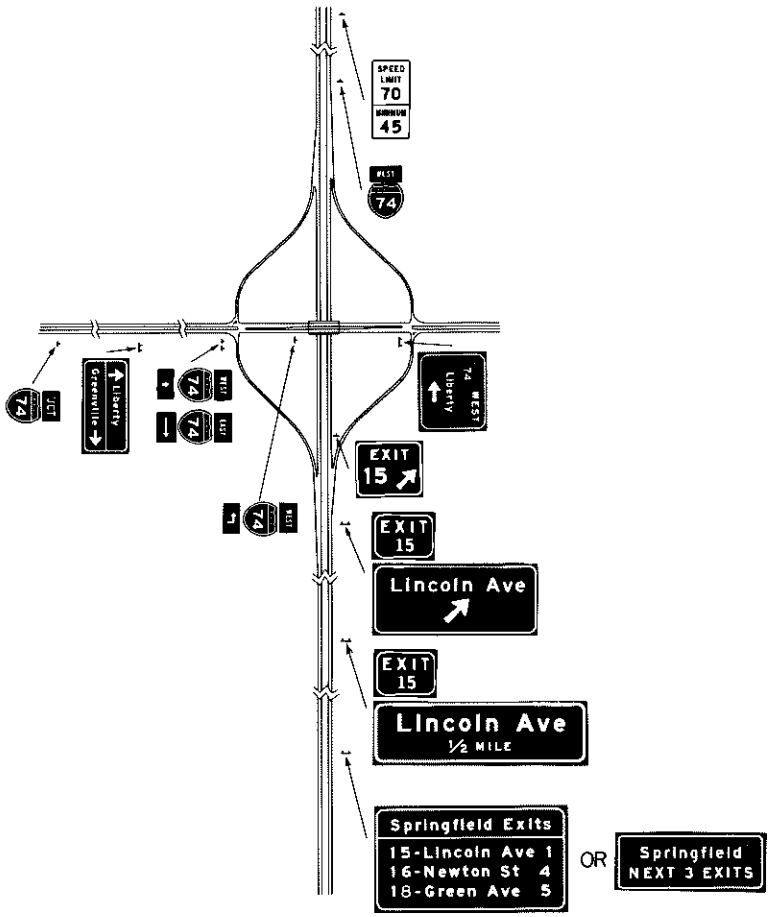


Figure 12 — Urban Diamond

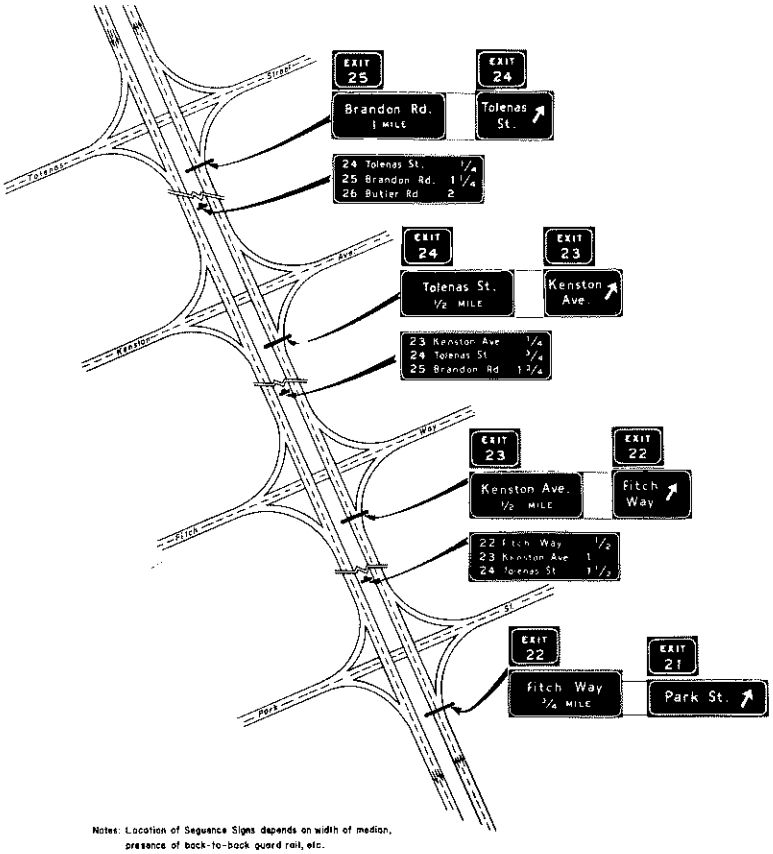


Figure 13 — Series of Closely Spaced Interchanges Showing Sequence Signs. (Only Major Guide Signs Shown)

At least one advance guide sign and a ground mounted gore sign shall be placed at minor interchanges.

17. FUNCTIONS OF MAJOR SIGNS

The major signs at interchanges and on their approaches are of three general types: advance guide signs, exit direction signs and gore signs. It is essential that the same destination messages be displayed on the three types of signs. New destination information should not be introduced into the major signs for one interchange, nor should information be dropped. Supplemental guide signing must be used as hereinafter provided.

The functions of the three general classes of signs for application in urban and rural areas are described below:

The advance guide sign notifies the driver, well in advance, of the interchange number, the intersecting route (or routes), the principal destination(s) served by the next interchange and the distance to that interchange.

The exit direction sign repeats the interchange number, the route and destination information displayed on the advance guide sign, and provides drivers with more specific information concerning the action they should take to reach the interchange exit.

The gore sign identifies the place of departure from the mainline roadway. Gore signs are of two types, ground mounted and overhead.

18. ADVANCE GUIDE SIGNS

General Requirements

The advance guide sign provides the driver with advance notice of his desired exit. With this notice he can leave the Interstate route without hesitation and without going beyond his desired exit point.

In all cases major guide signs placed in advance of the interchange deceleration lane shall be spaced at least 800 feet apart. To provide sufficient space for proper advance signing and operation, interchanges should be not less than one mile apart.

Two signs on opposite sides of the roadway may be used for special emphasis and may be needed for advance notice at locations where an overhead sign is not practical.

Letter sizes for advance guide signs are specified in Table 1. However, where vertical clearances are severely limited, and the standard requirements cannot be met, a reduced letter height, interline and edge spacing may be used. However, it is intended that the completed overhead sign installations at such locations have an effectiveness as nearly comparable with that normally achieved with the Interstate standards as possible.

The display of "1(2) MILE(S)" on the bottom line of the advance guide sign is a required component of the message.

(See Figure 14)

Next Exit Sign

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 _____ 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 10 miles. (Figure 15)

The "NEXT EXIT" sign may be displayed in either one line or in two lines. The one line "NEXT EXIT" sign is the more desirable choice. However, where the sign is to be mounted below the advance guide sign the two-line sign should be used if the one-line design would extend beyond the horizontal extremities of the advance guide sign.

Junctions and Major Interchanges

It is intended that the two-mile and one-mile advance guide signs be installed at all junctions and major interchanges. Figures 14 and 16 show the standard designs to be used at major interchanges.

In urban areas or in high population density rural areas, interchanges may be so closely spaced as to make two advance guide sign installations impracticable, and under these conditions the interchange sequence sign may be substituted for one of the advance guide signs. Interchange sequence signs are useful in orienting drivers when adequate space for two advance guide signs is not available.

An overhead location for advance guide signs is frequently the only means for minimizing congestion and hazard on the ap-

Figure 14 — Advance Guide Sign

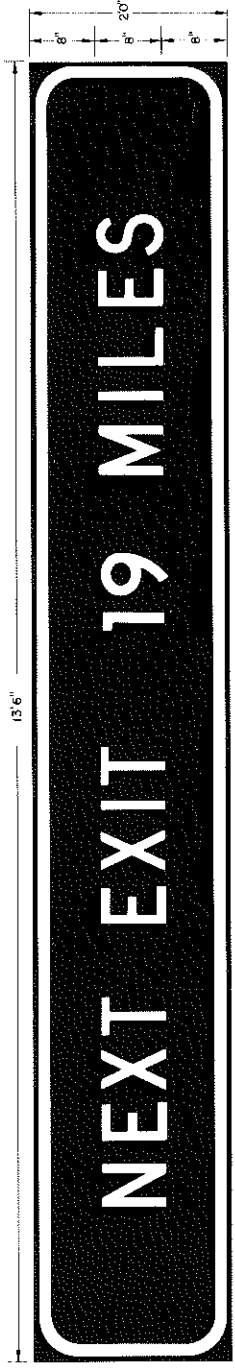


Figure 15 — Next Exit Mileage Sign

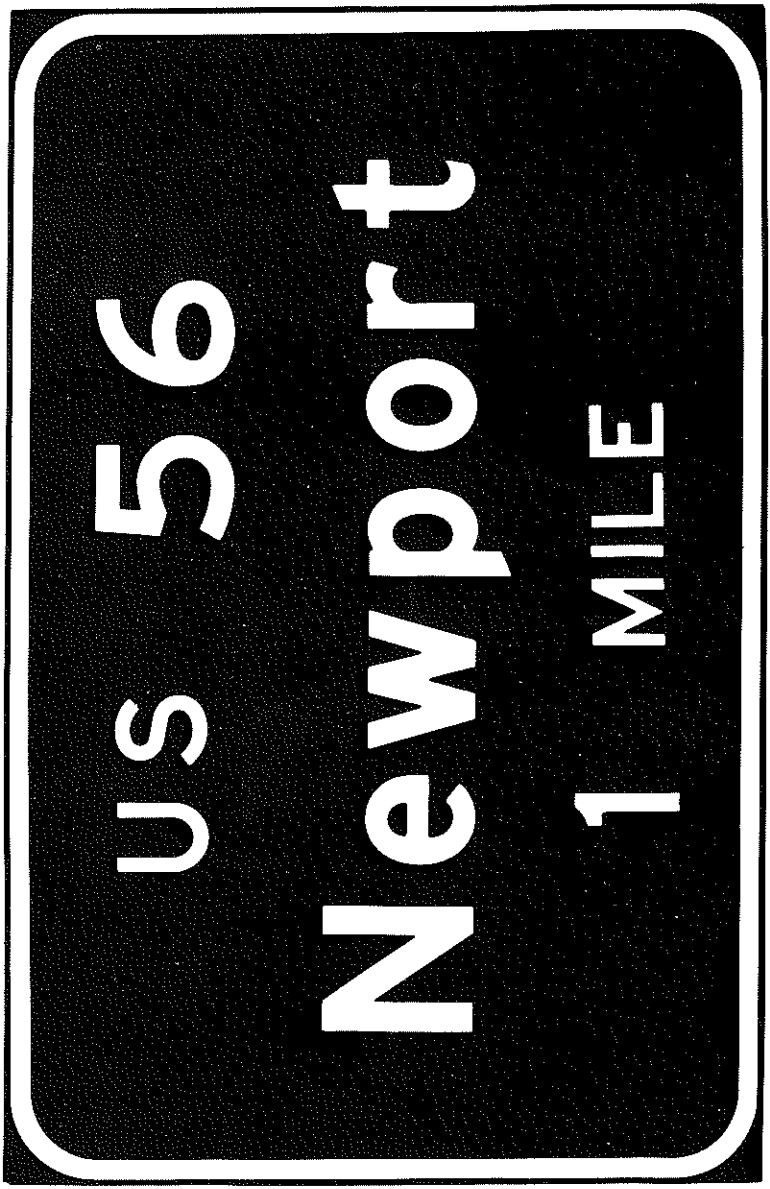


Figure 16 — Advance Guide Sign with Substitution for Route Marker

proaches to junctions and major interchanges.

As stated, the standard advance guide signs shall be installed at approximate distances of 1 and 2 miles from junctions and major interchanges, as indicated in Figures 8 and 10. The lines of legend shall be arranged in the following order from top to bottom:

a. Route marker(s) or the name of intersecting highway or street. Both may be shown if necessary in urban areas. As an alternate to route markers, the initials "US" or those appropriate to a state route may be used, together with the number of the intersecting route(s). (Figure 16)
b. A maximum of two destinations reached by turning at the interchange. A street name alone, as shown in Figure 17, may serve adequately to identify the interchange.
c. The last line shall read "2 MILES," "1 MILE," or whatever distance is applicable. The actual distance between the sign and the interchange should be posted to the nearest quarter mile. Decimals should not be used.

Intermediate Interchanges

The advance guide sign or signs installed at intermediate interchanges shall be of the same general design as shown in Figures 7, 8, and 10 for junctions and major interchanges except for size of legend. Two advance guide signs should be used with appropriate distance indications wherever necessary to give the driver a total of three notices of the exit destinations.

Minor Interchanges

The advance guide sign(s) for minor interchanges shall follow the general design previously described, but only one sign of this type is required and the letter size is reduced as shown in Table 1. It is desirable, nevertheless, to show the destination legend twice wherever this is feasible. If only one advance guide sign is used, and no exit direction sign is to be posted, it should be located ¼ to ½ mile from the exit gore.

19. EXIT DIRECTION SIGNS

The exit direction sign shall be installed between the last advance guide sign and the gore sign to advise drivers of the direction of the exit maneuver. This sign repeats the route and destination

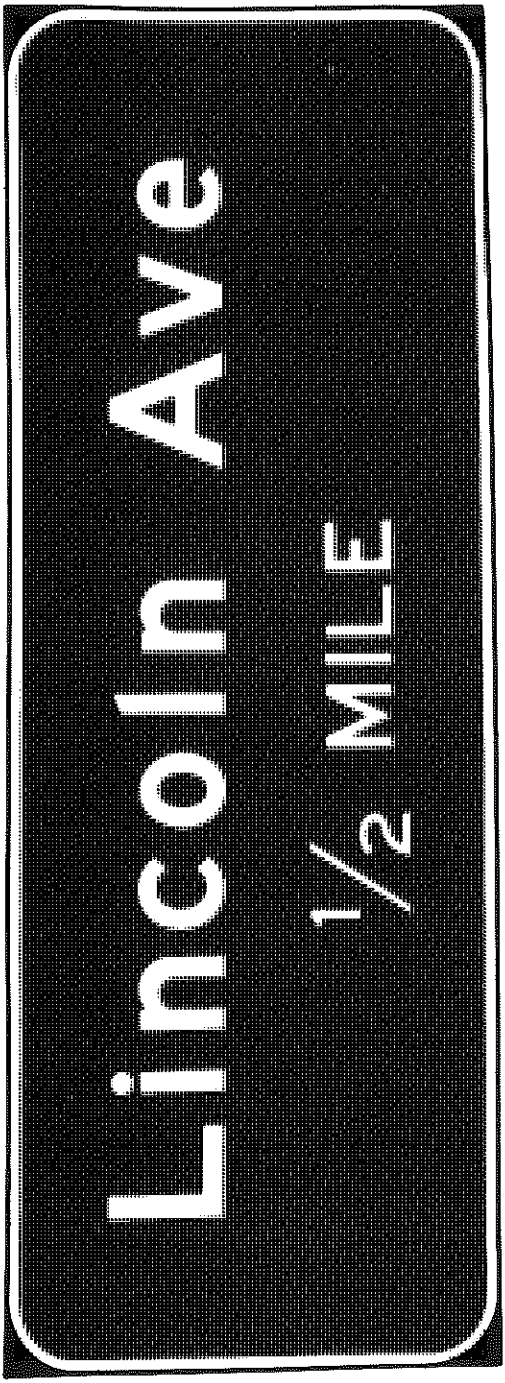


Figure 17 — Advance Guide Sign-Urban

information that was shown on the advance guide sign, or signs for the next exit, and thereby assures the driver of the destination served and whether he leaves on the right or on the left for that destination.

Location and Design

The sign for exit direction should be located at least 500 feet in advance of the theoretical gore point. It should be either at the beginning of the deceleration lane or at a location approximately ¼ to ½ mile in advance of the gore point, usually depending on the visibility of the exit roadway to drivers approaching on the through lanes of the Interstate System.

When the sign is located at or near the beginning of the deceleration lane and the alignment of the exit ramp is so conspicuous that an arrow symbol will be readily associated with the departure point and ramp alignment, the upward pointing directional arrow, appropriately inclined for the exit roadway alignment, shall be incorporated into the sign. When these conditions are not met or when the sign is located well in advance of the beginning of the deceleration lane, the directional word message "NEXT RIGHT" (or "NEXT LEFT") shall be used in place of the directional arrow. Figures 18, 19, and 20 illustrate typical designs.

In a few cases, principally in urban areas, visibility obstructions due to structures, unusual alignment, or tightly spaced interchanges may make it impossible to locate the exit direction sign, either with the arrow or with the "NEXT RIGHT" (or LEFT) action message, without violating the Manual requirement for 800-feet minimum spacing between major guide signs in advance of the deceleration lane, and 500-feet minimum spacing from the exit direction sign to the gore. In such circumstances, interchange sequence signs (see Section 22) may be substituted for the exit direction or advance guide sign.

The exit direction sign conforms in its general design to other Interstate guide signs. Letter size requirements are presented in Table I.

20. GORE SIGNS

General Requirements

Because the gore sign marks the location of the driver's final opportunity for a decision on his route, a consistent application of

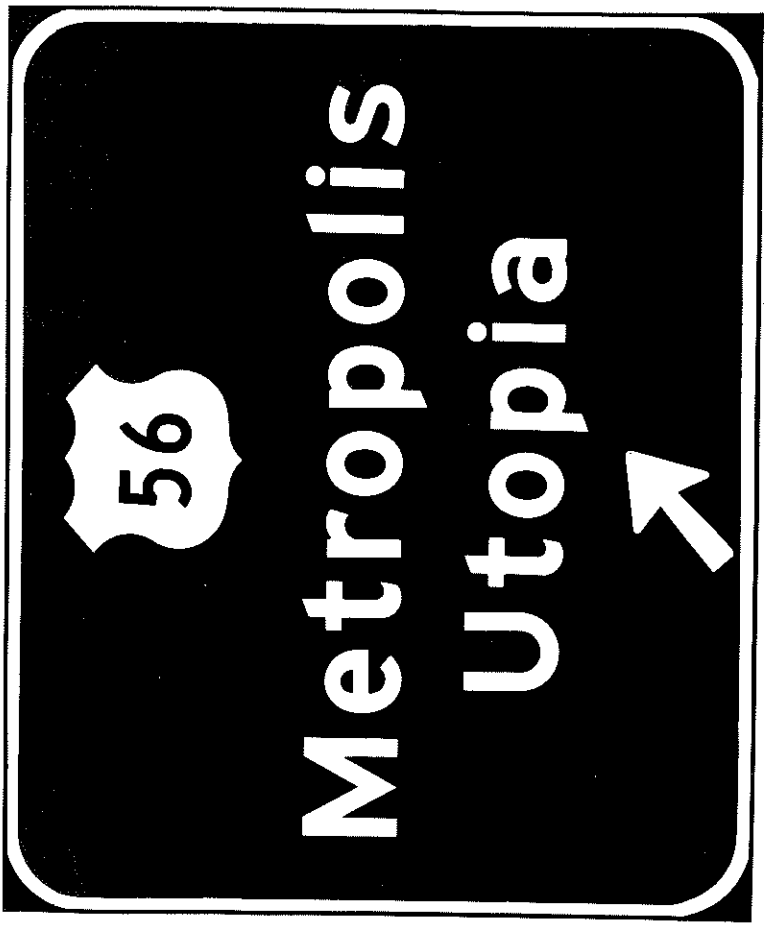


Figure 18 — Exit Direction Sign at Start of Deceleration Lane

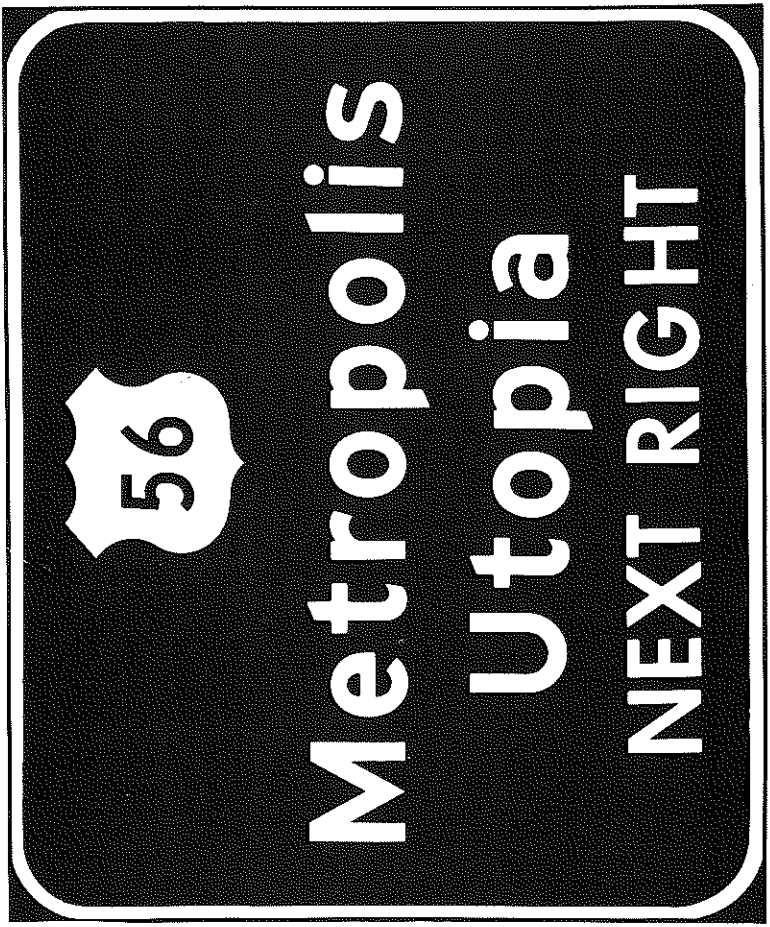


Figure 19 — Exit Direction Sign in Advance of Deceleration Lane

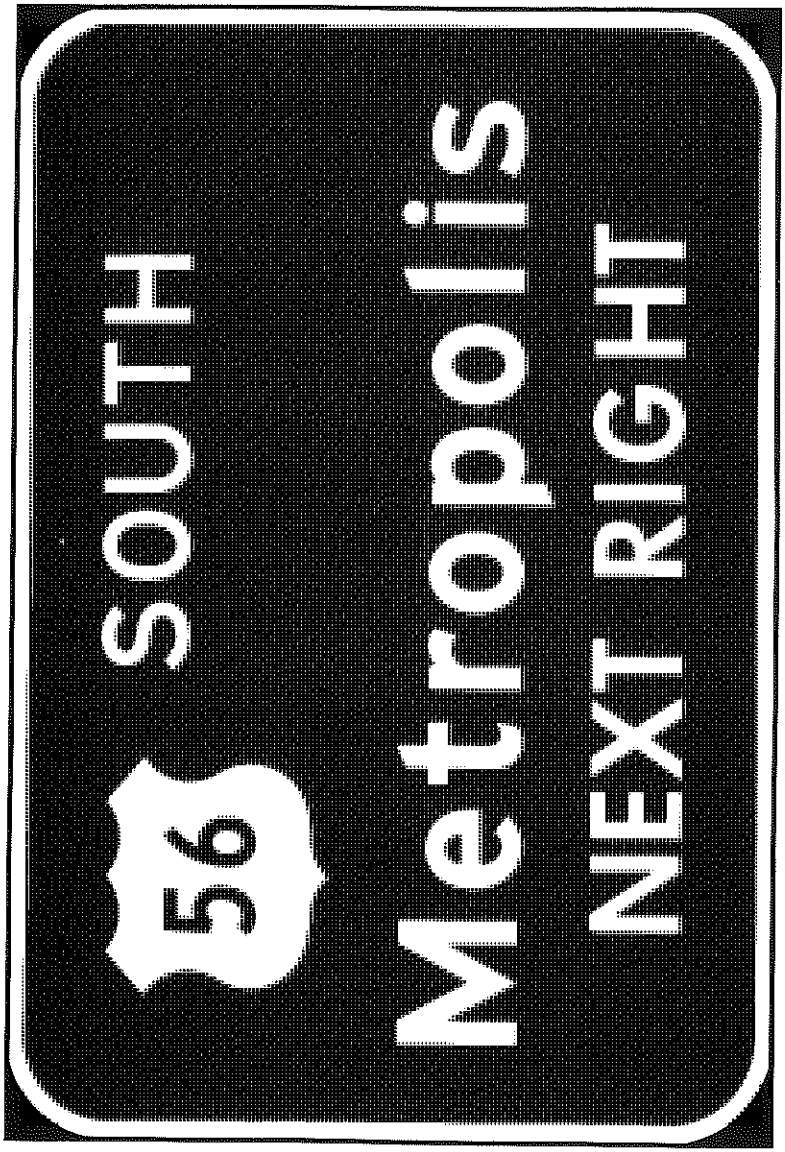


Figure 20 — Exit Direction Sign with Cardinal Direction

this type of sign in the varying design environments is of much importance. Each gore should be treated similarly, whether the interchange has one exit roadway or multiple exits. The basic need is for a sign to indicate the turning point.

Letter sizes applicable to gore signs appear in Table I.

Ground Mounted Gore Signs

The ground mounted gore sign is located in the area between the main roadway and the ramp at all exits (which do not have overhead gore signs). It may be used to supplement the latter where this is necessary for delineation or other purposes.

The sign shall carry the word "EXIT" with a number, and an arrow. See Figure 22. The sign shown in Figure 21 may be used with the exit number on a separate panel.

In cases where special emphasis is needed to identify the exit roadway, such as at the second exit of a multiple exit interchange, the ground mounted gore sign may consist of a route marker, cardinal direction plate and arrow.

In no case should the ground mounted gore sign present information not previously displayed on approach signs to the interchange exit.

Breakaway or yielding supports should always be used for ground mounted gore signs because of the vulnerability of this location to vehicles out of control.

Overhead Gore Signs

The overhead gore sign is located at or close to the theoretical gore point.

It shall display the exit number, the route number, cardinal direction and destination, with an appropriate upward-sloping arrow. (Figure 23)

The overhead gore sign shall always be used at or near the theoretical gore point of the first exit of a multi-exit interchange. In such cases, it should be located directly over the exit roadway.

At the same location and normally over the right hand through lane, a standard exit direction sign for the second exit may be installed. Also at this location, a sign over the lane or lanes farthest to the left may be used for the through movement and display the appropriate Interstate route number, a control city destination, or both, or the words "THRU TRAFFIC," with or without a down arrow. (See Figures 24 and 25)

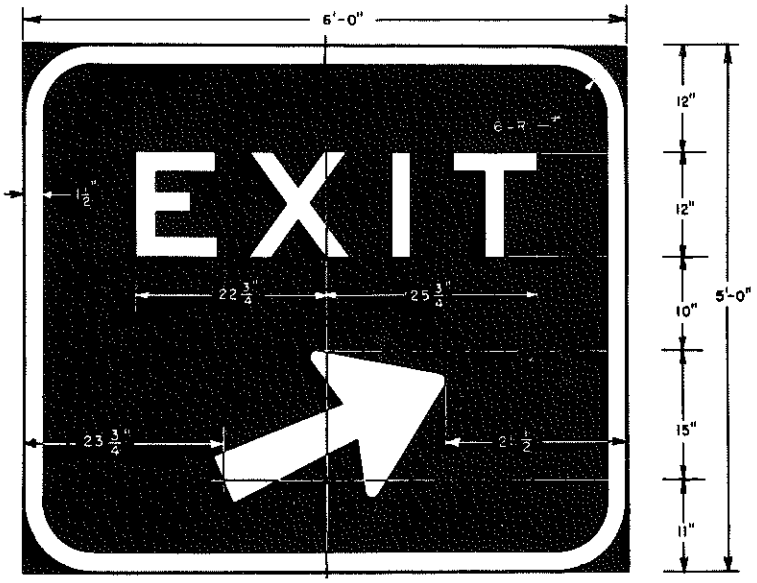


Figure 21 — Ground Mounted Gore EXIT Sign

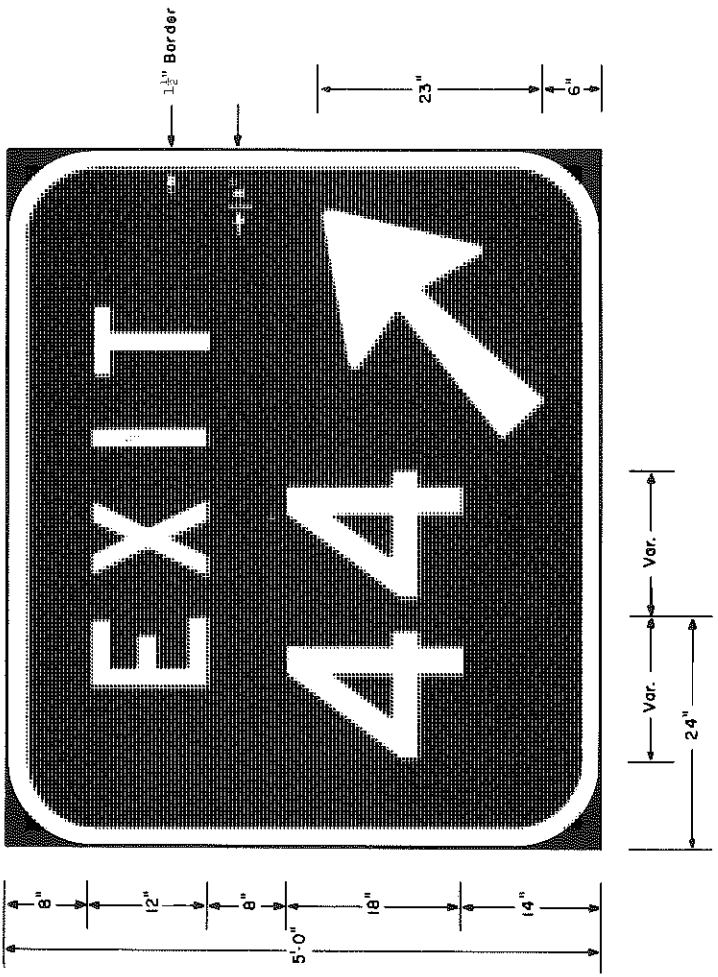


Figure 22 — EXIT Gore Sign with Number

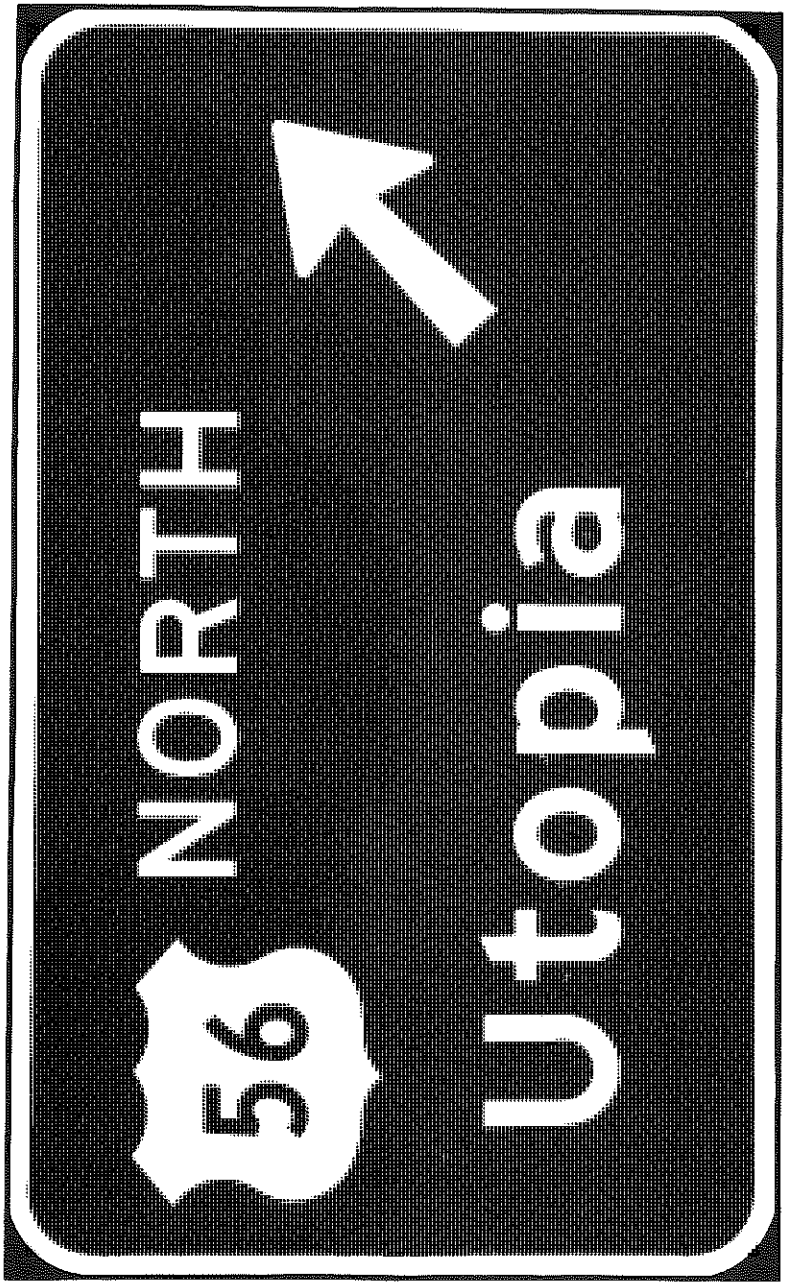


Figure 23 — Overhead or Ground Mount Exit Direction Sign

Figure 24 — Overhead Gore Sign Above Left Through Lane

Figure 25 — Alternate Overhead Gore Sign — Above Left Through Lane
Note: Arrow optional, when not used reduce vertical as indicated.

Overhead gore signs at the second exit are also effective. If the second exit is beyond an underpass, the sign should ordinarily be mounted on the face of the overhead structure so as to give motorists adequate visibility of the exit message. When the Interstate route is an overcrossing, the gore sign should be on a cantilever support over the exit lane at or near the theoretical gore point.

Where the distance between interchanges is short, advance guide signs for a given interchange have to be placed near or at the preceding interchange. In these circumstances, the overhead gore sign at the exit may also have as a companion sign over the through lanes the advance guide sign for the next interchange. (See Figure 13)

21. SUPPLEMENTAL GUIDE SIGNS

Information regarding destinations accessible from an interchange other than the ones shown on the standard interchange signing may be shown on supplemental guide signs. It should be recognized that supplemental signing can impair the effectiveness of other guide signing because of the possibility of overloading the driver's capacity to receive and make decisions on visual messages.

For this reason each State should develop an appropriate policy for supplemental guide signing. Such items as population and distance from the Interstate route and the significance of the destination to Interstate travellers should be taken into account. Only one supplemental guide sign may be used. It is to be located as an independent sign installation rather than being added to any of the major guide signs that are otherwise required.

The supplemental guide sign installation may list up to two destinations followed by the legend "NEXT RIGHT" or "SECOND RIGHT" or both, as appropriate. The 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 guide sign should follow by at least 800 feet. Exit numbers may be substituted for the "NEXT RIGHT" or a similar action message. (See Figure 26)

22. INTERCHANGE SEQUENCE SIGN

Where exits are very closely spaced for some distance, particularly through large urban areas, interchange sequence signs

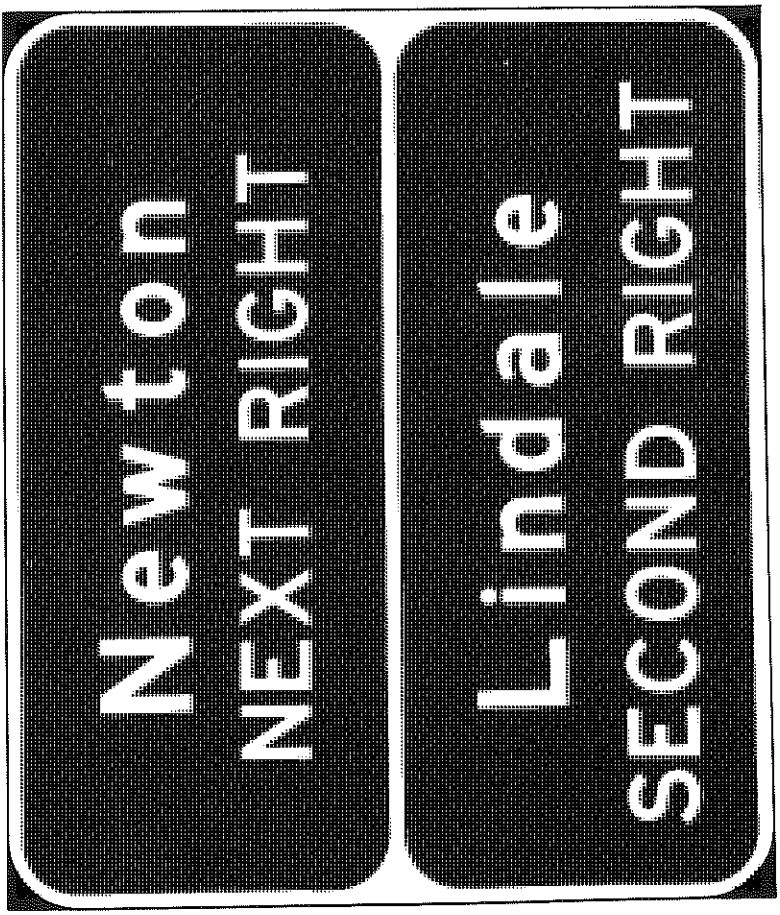


Figure 26 — Supplemental Exit Direction Guide Sign

identifying the next two or three interchanges by name or route number are useful. Mileages or fractions thereof to the appropriate interchange are displayed. Such signs should be placed in advance of the first advance guide sign. At closely spaced interchanges (Figure 13), the interchange sequence sign should be located approximately midway between interchanges. (Figure 27)

The interchange sequence sign may also be useful for smaller communities served by three or more exits. In these cases, the name of the community followed by the word "EXITS," should be on the top line and the destinations (not to exceed three) and corresponding mileages should be shown below. Interchange identifying numbers may be shown at the left of the destinations. (See Figure 28)

23. "NEXT EXIT" SIGN

Some parts of the Interstate Highway System will pass through "historical" or "recreational" regions, or urban areas served by a succession of several interchanges. Such areas may be indicated by a special sign several miles, if possible, in advance of the advance guide sign or signs for the first interchange carrying a suitable legend to identify the region followed by the words "NEXT (3) EXITS" or "NEXT (3) INTERCHANGES" where appropriate. (See Figure 29)

When the "NEXT (3) EXITS" sign is installed under conditions where traffic must select a course through a junction of two Interstate routes to reach a given exit, a sign modification of the type indicated in Figure 30 may be needed. Appropriate exit numbers may be displayed below the route numbers.

24. POST INTERCHANGE SIGNING

Sequence

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 starting point there should be erected an Interstate route marker, to be followed 1,000 feet farther on by a speed limit indication and 1,000 feet farther along by a mileage sign, as in Figure 8.

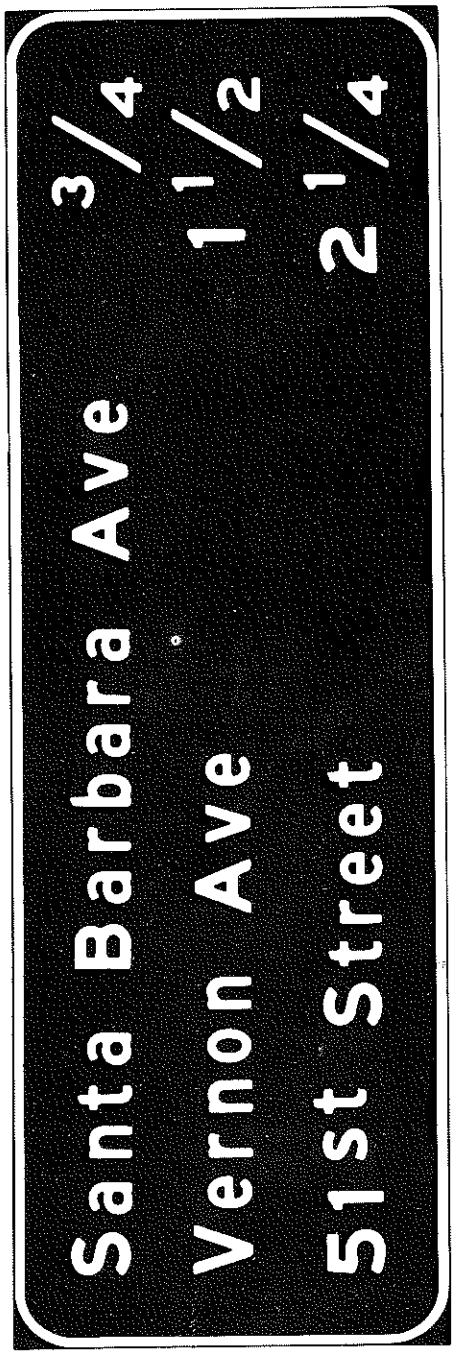


Figure 27 — Interchange Sequence Sign

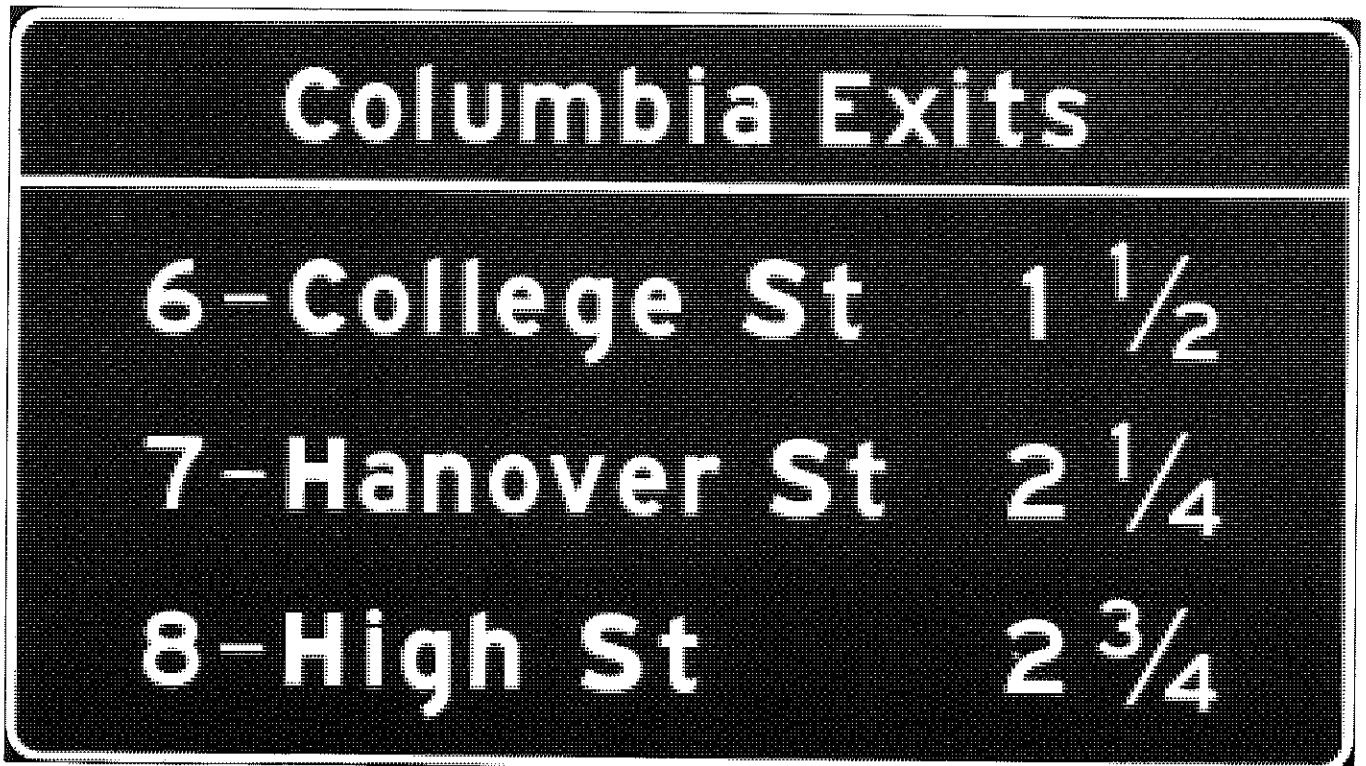


Figure 28 — Interchange Sequence Sign with EXIT Numbers

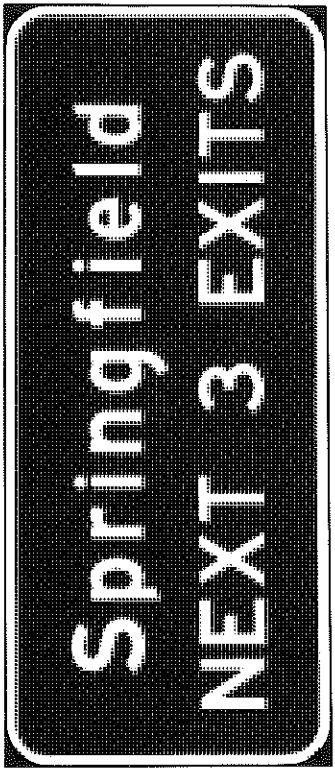


Figure 29 — Area Next — Exits Sign

Figure 30 — Area Next — Exits Sign with Exit Numbers

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 mileage sign will be of less importance than the other two and therefore can be omitted with little or no disadvantage.

Mileage Sign

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

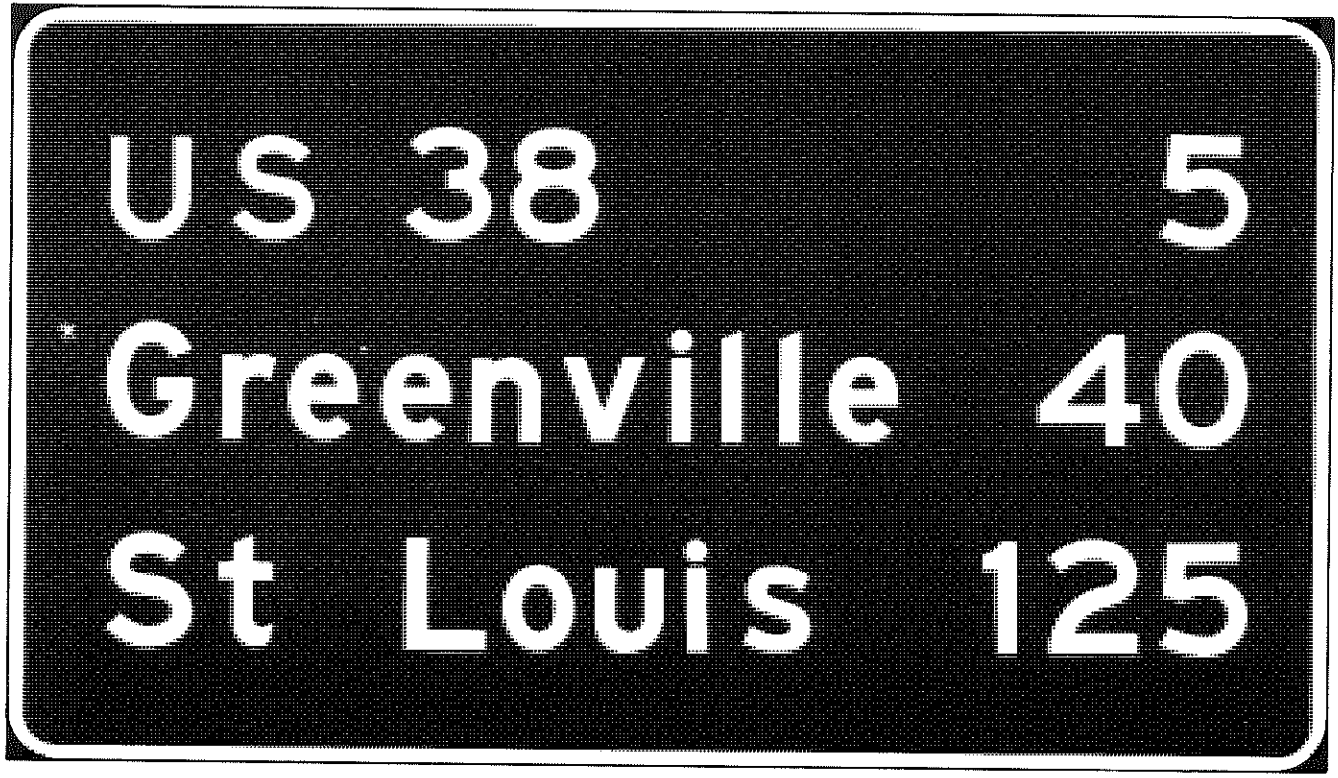
A second line may be used on the mileage sign, and when used, it should be reserved for communities of general interest which are on or immediately adjacent to the route or major traffic generators that the route was specifically located to serve. The choice of names for the second line, when it is used,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

The third, or bottom line, shall contain the name and distance to a control city (see Section 7) which has national significance for travelers using the Interstate System. The control city should be shown on the bottom line of every mileage sign until that city is reached. The next control city should be displayed until it is reached and so on.

Under normal conditions, mileages to the same destinations should not be shown more frequently than at five-mile intervals on mileage signs. The mileages displayed should be the actual distance to the destination displayed and not to the exit from the Interstate route. (See Figure 31)

25. SIGNING FOR SERVICES

On the controlled-access Interstate Highway System, it is assumed that generally there will be no commercial services available to the traveler between interchanges. It is expected that adequate fuel, motor services, food service and lodging will rapidly become available at most major interchange sites. It is also assumed that service signing will not be required in urban areas.



* Optional

Figure 31 — Mileage Sign

However, on those rural sections where such services are infrequent, the driver will need information to enable him to plan his stops.

Only services that adequately serve the needs of the Interstate motorist should be shown. Where services are not within sight of the interchange, the State highway department may elect to repeat the service signing in smaller size, on the intersecting highway, with arrows indicating the direction to the services. Service signing should only be provided at interchanges where the motorist can return to the Interstate highway and continue in the same direction of travel.

States that elect to provide service signing should establish a statewide policy for service signing and criteria for the availability of the services.

The State policy may prescribe the use of one or more of the three types of service signing described below, except that type (a) will always be required if type (b) or type (c) are used either alone or together:

(a) General motorist services, which will identify the availability of telephone, lodging, food, camping, gasoline and hospitals.
(b) Specific information panels located so as to be readable from the main traveled way approaching an interchange, giving the name, brand or trademark of the services available at that interchange.
(c) Roadside area information panels or displays erected in safety rest areas, scenic overlooks and similar areas, so as not to be readable from the main traveled way, and giving the name, brand or trademark of services available at interchanges preceding the next roadside area.

The criteria for the availability of the various types of services to be identified should include the following:

Gas (and associated services)

(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.

Food

(a) Where required, licensing or approval by State or political subdivision.
(b) Continuous operation to serve 3 meals a day, 7 days a week.
(c) Telephone.

Lodging

(a) Where required, licensing or approval by State or political subdivision.
(b) Adequate sleeping accommodations.
(c) Telephone.

Telephone

(a) Continuous operation, 7 days a week.

Hospital

(a) Continuous emergency care capability, with a doctor on duty 24 hours a day, 7 days a week.

Camping (Public and Private)

(a) Licensing or approval by the appropriate public agency.
(b) Adequate parking accommodations.
(c) Modern, sanitary facilities and drinking water.
(d) Available year-round, but if operated on a seasonal basis, signs will be removed.

The services sign shall be mounted in an effective location in advance of the exit leading to the services available and should contain such legend as may be appropriate. The directional legend, "Next Right" or "Second Right" should be used in the same way as prescribed for supplemental guide signs when appropriate. If the distance to the next point where services are available is considerable, a sign "Next Services Miles," shown in Figure 33, may be used as a separate panel mounted under the exit direction sign near the beginning of the deceleration lane.

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

There has been considerable success with the standardization of service messages on a single sign. The services available are shown at specified locations on the sign, and the sign space

Figure 32 — Motorist Services General Sign

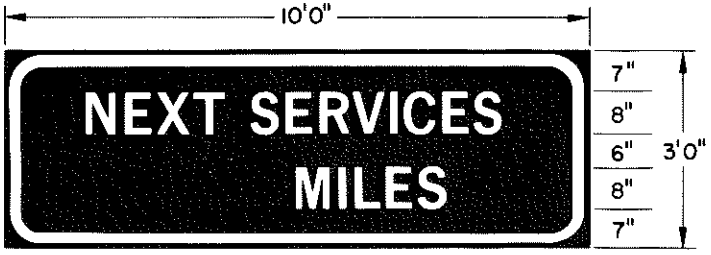


Figure 33 — Next Services Sign

normally reserved for a given service is left blank when that service is not present. This has the further advantage of flexibility for the future, when the service may become available. The standard display 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. (Figure 32)

A separate telephone sign may be erected when telephone facilities are located adjacent to the Interstate route at places where telephones would not normally be expected. The color, general design, location and use of the telephone sign shall conform with the provisions for service signs.

All signing for services shall have reflectorized white letters, symbols and border on a reflectorized or opaque blue background. (*See Appendix I for National Standards and Criteria for Official Highway Signs within Interstate Rights-of-Way Giving Specific Information for Traveling Public*. Federal Register, Vol. 24, No. 15, January 23, 1969)

Roadside Area Information Display

Roadside area information panels or displays are erected in safety rest areas, scenic overlooks and similar roadside areas, for providing motorists with specific services information. This panel or display shall be located so as not to be readable from the main traveled way.

Motorist services information may be displayed in one roadside area for all interchanges preceding the next roadside area.

26. REST AND SCENIC AREAS

Rest Areas

On the approach to rest areas an advance guide sign shall be placed one mile or two miles in advance of the rest area. Between the advance guide sign and the gore of the rest area exit, there may be a 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, there shall be a sign with a message "REST AREA" together with an arrow indicating the appropriate turn. All signs for rest areas shall have reflectorized white letters, symbols and borders on a blue background. (See Figure 34)

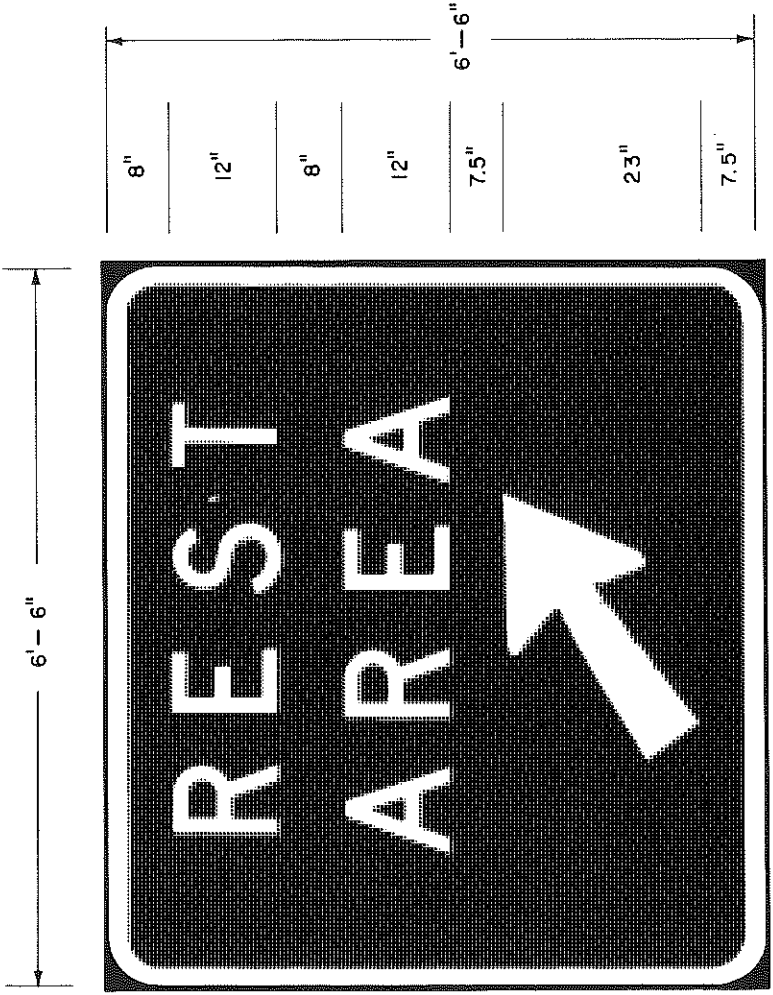


Figure 34 — Rest Area Gore Sign

Scenic Areas

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

27. WEIGH STATION SIGNING

The general concept for "Weigh Station" signing is similar to "Rest Area" signing, since in both cases traffic using either area remains within the right of way.

The normal installation for each weigh station approach shall include three basic signs – Sign A, advance guide; Sign B, exit direction; and Sign C, gore. The general location, legend, color, and control letter size shall be as shown in Figure 35.

Where State law requires a regulatory sign in advance of the weigh station, a fourth sign (similar to D in the figure) may be located ahead of Sign B in the series. This supplemental sign shall be limited to three lines in addition to "Next Right" at the bottom. The sign message may be varied as required. Only where specifically established in State laws can other wordings than shown herein be used. In the interest of uniformity every effort should be made to adjust State laws to conform to these standards where they now vary. The supplemental panel on the exit direction Sign B should be a changeable message, "Open" or "Closed" or a blank out sign. Design of this panel for remote control of the changeable message is generally advocated but a manual change installation may be used.

28. MILEPOSTS

To assist drivers in estimating progress and in orienting themselves for decisions that may be needed, to provide means for identifying the location of emergency incidents, and to aid generally in the operation of the facility, mileposts shall be placed along each section of the Interstate Highway System. The "Zero" mileage on the Interstate routes shall be at the south or west State lines and at junctions where routes begin.

The mileage numbering shall be continuous for each route within any State, except where Interstate routes overlap. In this case continuity shall be established for one of the routes which

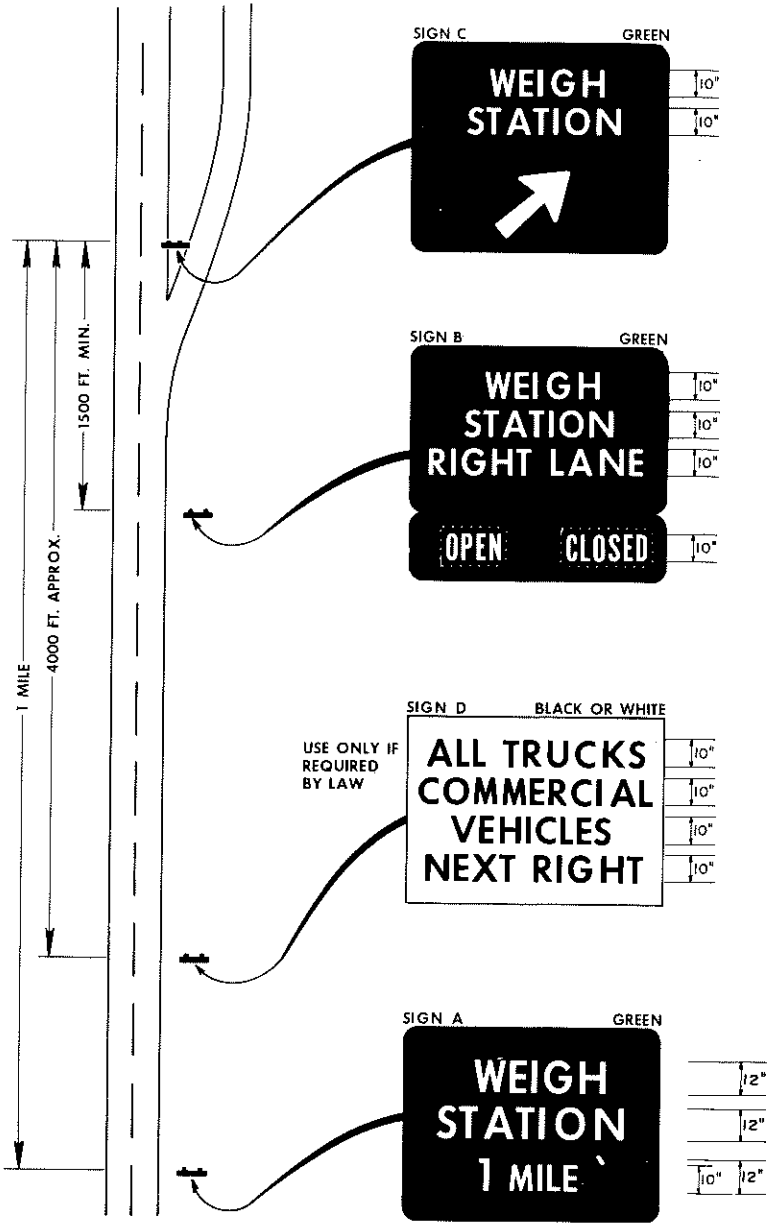


Figure 35 — Weigh Station Signing

should also have continuity in the interchange numbering. On the route without milepost continuity, the first milepost 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.

Design

Milepost signs shall be on 6-inch wide vertical panels, without border, of standard Interstate green color background, with reflectorization required. Mileposts shall be mounted approximately the same height and lateral location as delineators. Numerals shall conform to the requirements of Table I.

Location

Accurate mileage measurements shall be made on roadways for northbound and eastbound traffic to determine milepost locations. The mileposts for southbound and westbound roadways shall be set at locations directly opposite.

Where an interchange roadway or other interference prevents installing a milepost at its correct location, it may be moved in either direction as much as 50 feet. If it cannot be placed within that degree of accuracy, it should be omitted.

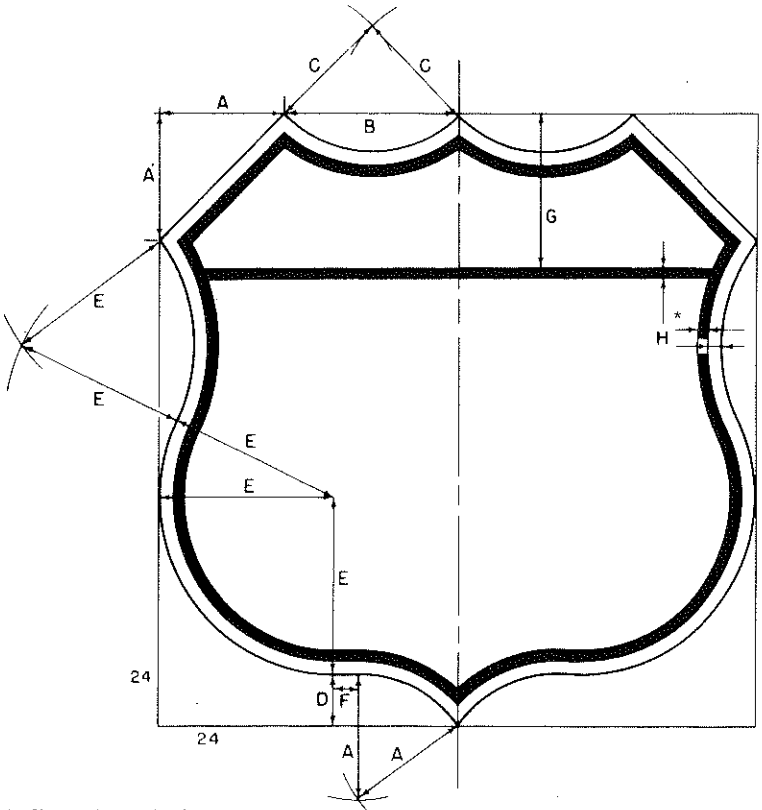
29. ROUTE MARKERS AND TRAIL BLAZERS

General Design Provisions

The Official Interstate Route Marker is the red, white, and blue reflectorized distinctive shield adopted by AASHO on August 14, 1957. Two general proportions are prescribed; one to accommodate route numbers with one or two digits, and another for markers with three digits or two digits and a suffix letter.

Where the Interstate marker is displayed in an assembly or on the face of a guide sign with US or State route markers, the Interstate numeral should be at least equal in size to these other route markers. The standard designs for route markers used independently, and on guide signs, are shown in Figures 36 through 39.

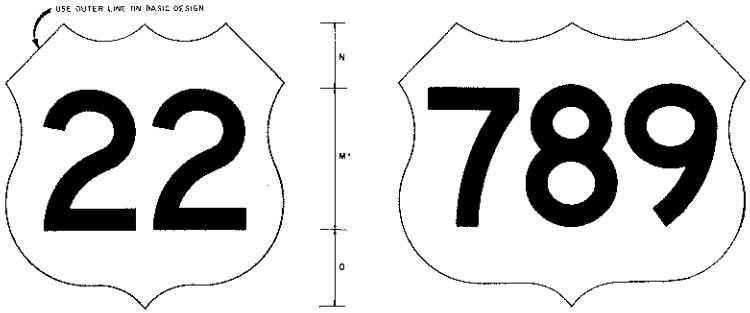
The Interstate Route Marker may be either fully reflectorized or only in the numerals and border. However, where it is part of a reflectorized background sign, it shall be fully reflectorized.



*Reflector button borders may be slightly wider but should not extend beyond the nominal outside dimensions of the route marker except as necessary to accommodate the prescribed size of numerals.

	A	B	C	D	E	F	G	H*
24 X 24	5	7	5	2	7	1	6	1/2
30 X 24	5	10	9	2	7	4	6	1/2
36 X 36	7 1/2	10 1/2	7 1/2	3	10 1/2	1 1/2	9	3/4
45 X 36	7 1/2	15	13 1/2	3	10 1/2	5 1/2	9	3/4
48 X 48	10	14	10	4	14	2	12	1
60 X 48	10	20	18	4	14	8	12	1

Figure 36 — U S Shield — Basic Design



U S SHIELD - GUIDE SIGN USE

*To a few users numerals cannot be accommodated within the space available. For these situations, the standard Series D numeral may be reduced to Series C, or as a second choice to the next smaller height commonly available.

	M*	N	O
24 X 24	12	5 1/8	6 1/8
30 X 24	12	5 1/8	6 7/8
36 X 36	18	7 5/8	9 1/2
45 X 36	18	8 1/4	9 3/4
48 X 48	24	11	13
60 X 48	24	11	13

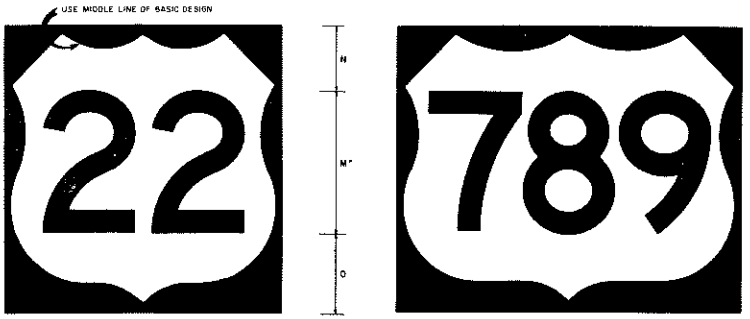
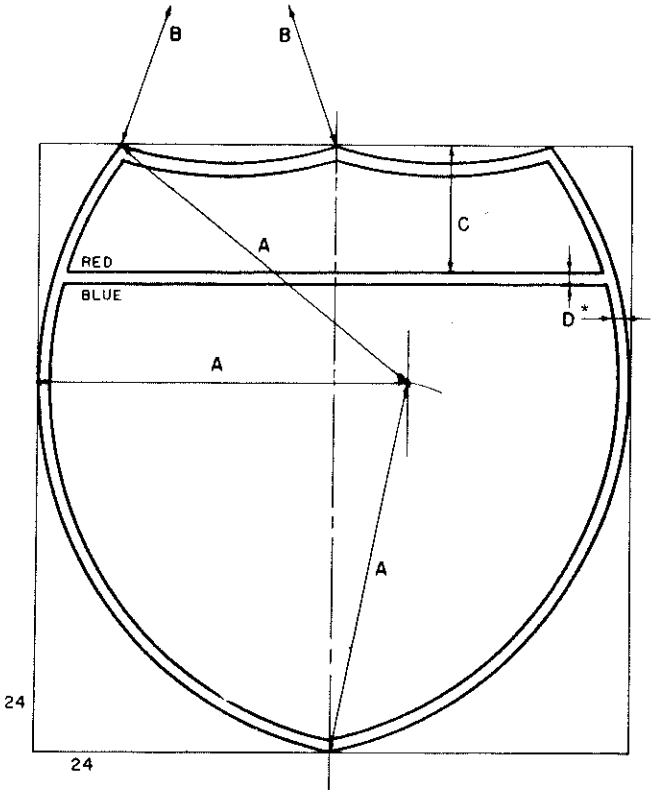


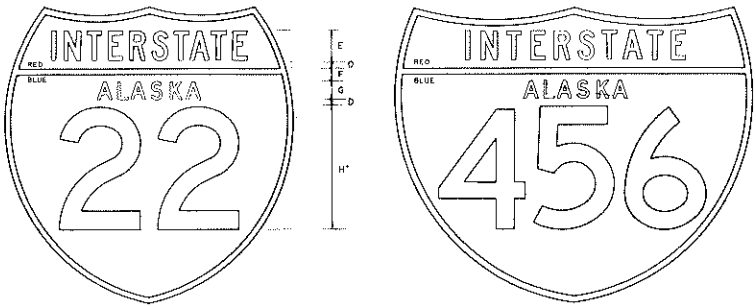
Figure 37 — U S Shield — Junction Assembly Use



	A	B	C	D*
24 X 24	15	15	5	1/2
30 X 24	17	24	5	1/2
36 X 36	22 1/2	22 1/2	7 1/2	3/4
45 X 36	25 1/2	36	7 1/2	3/4
48 X 48	30	30	10	1
60 X 48	34	48	10	1

*Reflector button borders may be slightly wider but should not extend beyond the nominal outside dimensions of the route marker except as necessary to accommodate the prescribed size of numerals.

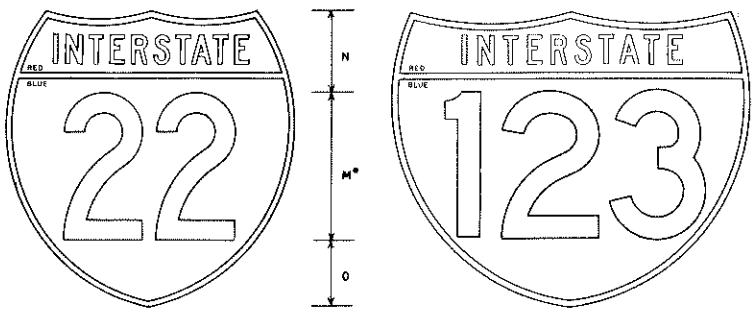
Figure 38 — Interstate Shield — Basic Design



INTERSTATE SHIELD – INDEPENDENT USE

	D	E	F	G	H
24 x 24	1/4	2 1/4	1	1 1/4	10
30 x 24	1/2	2 1/4	1	1 1/4	10
36 x 36	1/4	3 1/4	1 1/2	2 1/4	15
45 x 36	1/4	3 1/4	1 1/2	2 1/4	15
48 x 48		5	2	3	20
60 x 48		5	2	3	20

*In a few cases numerals cannot be accommodated within the space available. For these situations, the standard series D numeral may be reduced to Series C or 4? a second choice on the next smaller height commonly available.



INTERSTATE SHIELD – GUIDE SIGN USE

	M*	N	O
24x24	12	6 1/2	5 1/2
30x24	12	6 1/2	5 1/2
36x36	18	9-3/4	8 1/4
45x36	18	9-3/4	8 1/4
48x48	24	13	11
60x48	24	13	11

*In a few cases numerals cannot be accommodated within the space available. For these situations, the standard series D numeral may be reduced to Series C or 4? a second choice on the next smaller height commonly available.

Figure 39 — Interstate Shield — Independent and Guide Sign Use

Use on Intersecting Routes and the Interstate System

Route markers, as such, will have less general application on the Interstate System than on other highways. Directional signs will incorporate the Interstate route marker when appropriate. Route markers and auxiliary markers showing junctions and turns will not ordinarily be used on the Interstate System. They will be used as required on approach highways. Confirming route markers will be used at the prescribed location just beyond some entrances to Interstate highways, and at suitable intervals along a route. At interchanges a confirming route marker may be placed on the through roadway just beyond an exit gore.

A 24-inch or larger Interstate route marker shall be used on intersecting highways and approach roads to indicate the interchange with an Interstate route.

The 36-inch or larger marker shall be the official size to mark the Interstate System roadways, and shall be used on guide signs using 12-inch lower case letters for place names. Where the sign message employs larger copy, appropriate increase should be made in the size of the Interstate route marker.

Figures 7 through 12 illustrate the various applications of Interstate route markers in the signing of interchanges. The illustrations are for the purpose of guiding State highway departments in their practice of identifying the course of the Interstate route rather than the highway intersected. Where State intersection signing practice is in general conformity with the Manual on Uniform Traffic Control Devices and the details differ from those shown in the Interstate Sign Manual illustrations the State practice may be utilized for the crossroad signing at an Interstate interchange.

Trailblazers

The 24-inch Interstate shield shall be used with an appropriately positioned directional arrow and the word "TO" to make up a "Trailblazer Assembly" to direct traffic to the Interstate facility, and on highway sections that connect completed portions of the Interstate System.

The use of the word "TO" indicates that the road or street, where the marker is posted, is not a part of the official Interstate System, and that a driver is merely being directed progressively to the Interstate Route. Where there are gaps between completed sections of the Interstate System, the trailblazer assembly should be used to indicate the best routing between the termini of the completed sections. This will enable interstate drivers to follow

the best route and make maximum use of completed Interstate highways.

The word "TO," a cardinal direction marker, if needed, the 24-inch Interstate shield and the directional arrow may all be separate units and connected to the same support and positioned from top to bottom in the above order, with the directional arrow complying with the Manual on Uniform Traffic Control Devices, or all be component parts of the "Trailblazer Assembly" and included on a single panel. The directional arrow should be appropriately positioned to indicate the direction to the route. All auxiliary markers are to be white on a blue background.

Cardinal Direction Markers

Cardinal direction markers shall be mounted directly above the route marker where needed to direct motorists properly. Where an Interstate marker is displayed as part of a guide sign, the cardinal direction will be a part of the sign message, but should appear above or to the right of the route marker to which it applies. The top of the cardinal direction message should be in line with the top of the marker, when it is on the right of the route marker.

The cardinal direction marker shall have a reflectorized white legend and border on a blue reflectorized background which conforms to the Standard Interstate Blue of the Interstate Route Marker.

The cardinal direction marker shall be 24 by 12 inches when used with the 24-inch route marker and 30 by 15 inches with the 36-inch route marker.

The 24 by 12-inch size should have a 3/8-inch white border extending to the outer edge and 6-inch Series "C" letters. The 30 by 15-inch size shall have a 1/2-inch border and 7-inch Series "C" letters.

Cardinal direction markers will carry the word NORTH, SOUTH, EAST, or WEST only.

Off Interstate Route Marker

This marker can be used on a major highway that is not a part of the Interstate System, but one that serves the business area of a city from interchanges on the Interstate System. The marker will carry the Interstate route number and will be reflectorized with white legend, numerals and borders on a standard Interstate Green Color background. (See Figure 40)

It will be used in addition to such other route markers as may apply to the particular highway used as the business route. Where traffic can leave the Interstate route at an interchange on one side of the bypassed city and reenter it at an interchange on the other, the word "Loop" will be used. Where the business traffic goes into the bypassed city and back to the Interstate route over a single road and through the same interchange, the word "Spur" should be used. The off-Interstate route marker shall not be used to mark a Frontage Road.

In no instance is the word "Interstate" to appear on this marker, as this designation is reserved solely for the official Interstate System.

When this marker appears on an advance guide sign on the Interstate System to indicate an exit to the "Business Route," the size of the marker shall be consistent with others on the same sign. In all other places, the 24-inch marker shall be used.

Marking of Overlapping Routes

Where the Interstate System is developed over an existing US numbered route, both the US and the Interstate System shields and route numbers may be used to mark coincident sections. Where the Interstate System is on a new location, the US numbers and markers will remain as a part of the State highway system until approval of a route change has been cleared through the AASHO Route Numbering Subcommittee. Otherwise, the US markers and numbers will remain on routes now established or on locations provided by the construction of new and better routes.

For simplicity in route marking, the identification of Interstate routes with other route number installations should be avoided.

The use of route markers other than those for the Interstate System will normally be restricted to markers for US and State routes officially employed for the guidance of traffic in accordance with the "Purpose and Policy" statement of the American Association of State Highway Officials, dated August 1, 1962,* which applies to Interstate and US numbered routes. However, the marking of unnumbered routes having major importance to the proper guidance of Interstate traffic because of their names, such as the Great River Road, is permissible if carried out in general

*See Appendix C, Page 115

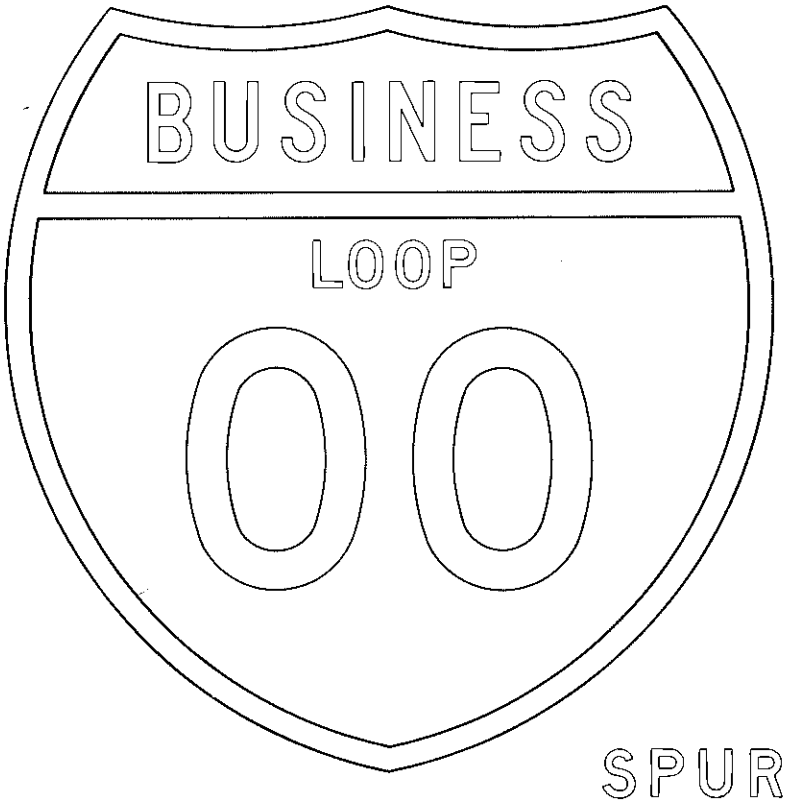


Figure 40 — Off Interstate Business Route Marker

accordance with the methods prescribed in the aforementioned policy for US Numbered Routes.

When US, State, or other route markers appear on the face of Interstate guide signs, the design shall conform with Figure 37 and when used elsewhere in separate installations, viz., black legend on a white background for US route markers and for most State route markers. Use of white legends and green backgrounds on route markers is limited to the off-Interstate System Business Loop (or Spur) route marker.

Signing Interstate Routes as Memorial Highways

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.

30. MISCELLANEOUS GUIDE SIGNS

Boundary and Orientation Signs

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 Interstate System 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 Interstate signing.

Toll Road Signs

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. At other locations within a reasonable approach distance of toll facilities when the name or trailblazer symbol for the toll facility would provide better guidance to 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 described under "Route Markers."

Exit Only Panels

The 'EXIT ONLY" panel is of value in advising drivers of an imminent lane drop situation. It may be in form of either of the designs shown in Figure 44. The panel shall have a yellow background with black legend. It will normally be most effective on the lower edge or lowest line of an overhead gore, exit direction or advance guide signs on roadways approaching an interchange where there is a reduction in the number of available lanes for through traffic.

31. REGULATORY AND WARNING SIGNS

Regulatory and warning signs on the Interstate System shall be in general conformance with the established principles prescribed in the latest edition of the Manual on Uniform Traffic Control Devices. Because the Interstate System is built to a high standard of design, warning signs will seldom be required. Where they are used on the through lanes of the Interstate System, warning signs shall have a minimum standard size of 48 by 48 inches. Regulatory

signs other than the "YIELD" sign shall normally be 48 by 60 inches in size.

Detailed Specifications – Warning Signs

MERGING TRAFFIC. This sign should be erected on the appropriate side of the through roadway of an Interstate route in advance of where another roadway enters. The use of "MERGING TRAFFIC" signs on an entrance ramp is not recommended.

EXIT (25) MPH. At exit ramps an advisory exit speed sign (Figure 41) should be mounted along the ramp roadway either opposite or in advance of the gore to provide adequate notice to the driver of the necessity for an adjustment in his speed. The speed indicated shall be the safe speed as determined by conditions at each individual location.

A sign reading "RAMP (25) MPH" should be used in place of the normal "EXIT (25) MPH" for the two conditions listed below:

1. On direct ramp connections at the junction of two Interstate facilities where a normal exit ramp is not involved.
2. At an entrance to the Interstate System from another high-type facility where an advisory speed sign is needed.

Where additional advisory speed indication is needed on the ramp well beyond the gore, the standard curve symbol and advisory speed sign combination prescribed in the Manual on Uniform Traffic Control Devices should also be used. If the intervening distance to a "STOP" sign or a signal is short, the exit speed sign may be omitted in favor of an appropriate advance warning sign at a suitable point on the ramp. Similarly, warning signs and advisory speed signs may be used on entrance ramps or on ramps connecting Interstate routes.

Detailed Specifications – Regulatory Signs

State legislation or regulation should deal with traffic operating conditions on highways of the Interstate System so that a minimum of regulatory signing will be required. The signs described below should be used selectively at points of need.

EMERGENCY AND AUTHORIZED VEHICLES ONLY. This sign (24 by 30 inches) may be used to mark median crossovers. (See Figure 42)

KEEP OFF MEDIAN. This sign may be used sparingly and at random intervals wherever required to avoid improper use of the median area.

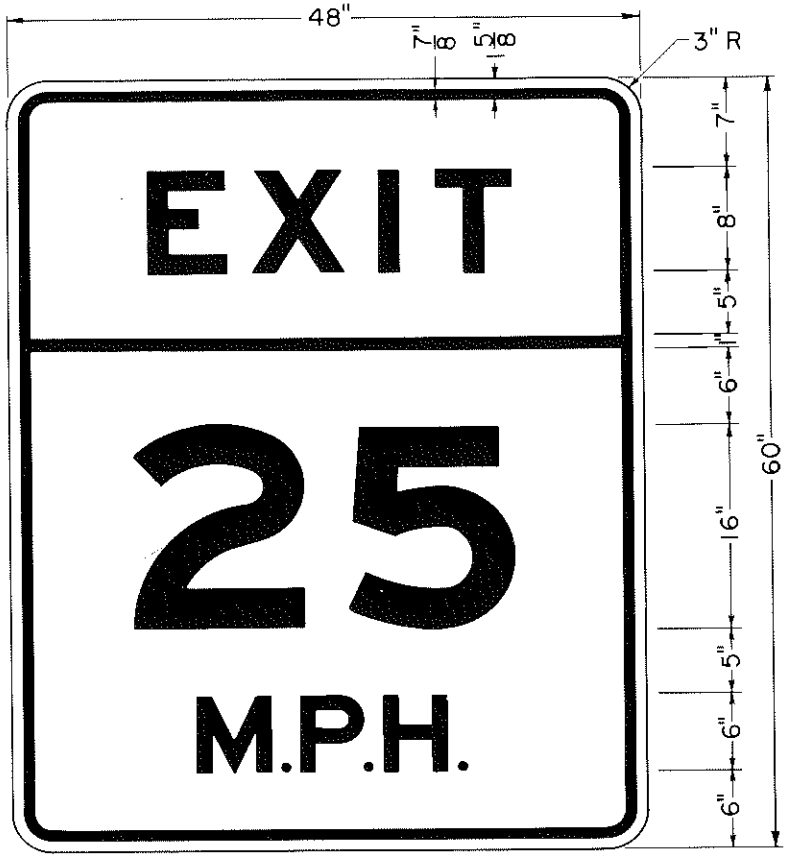


Figure 41 — Advisory EXIT Speed Sign

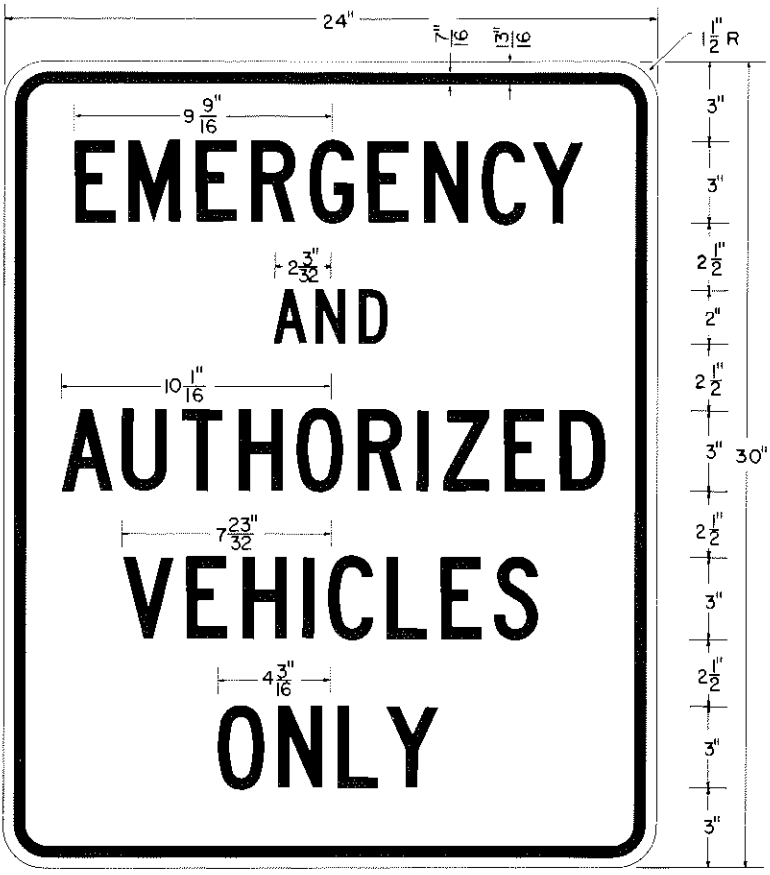


Figure 42 — Emergency and Authorized Vehicles Only

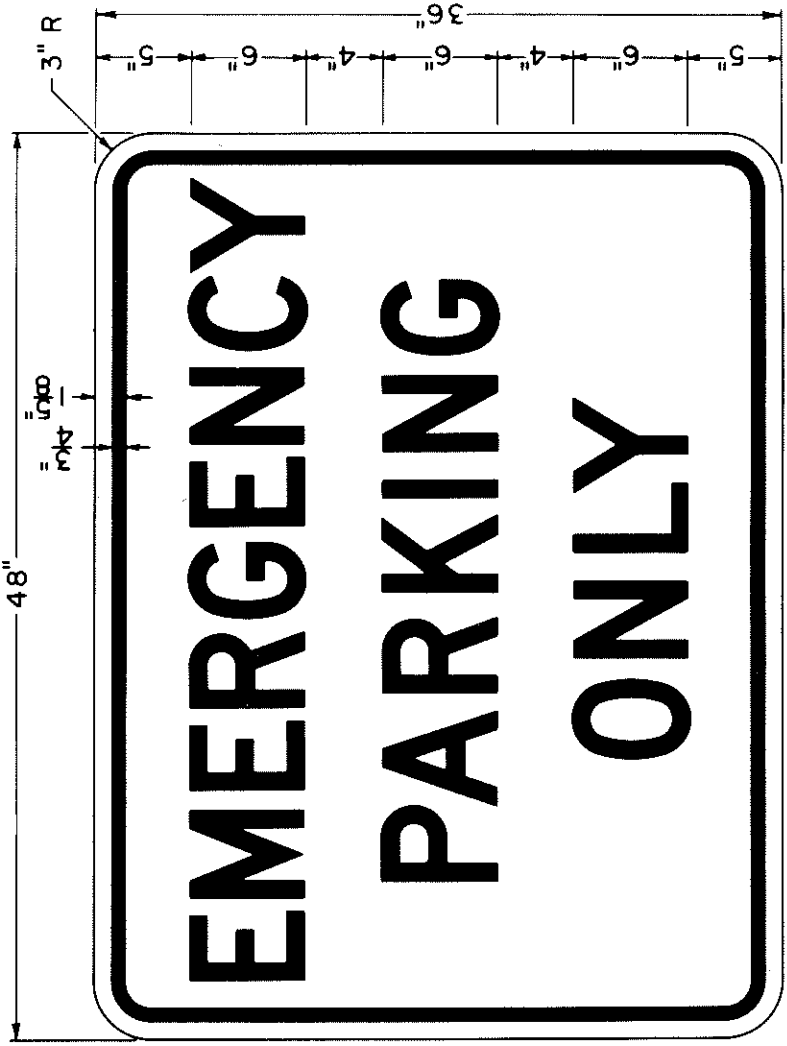
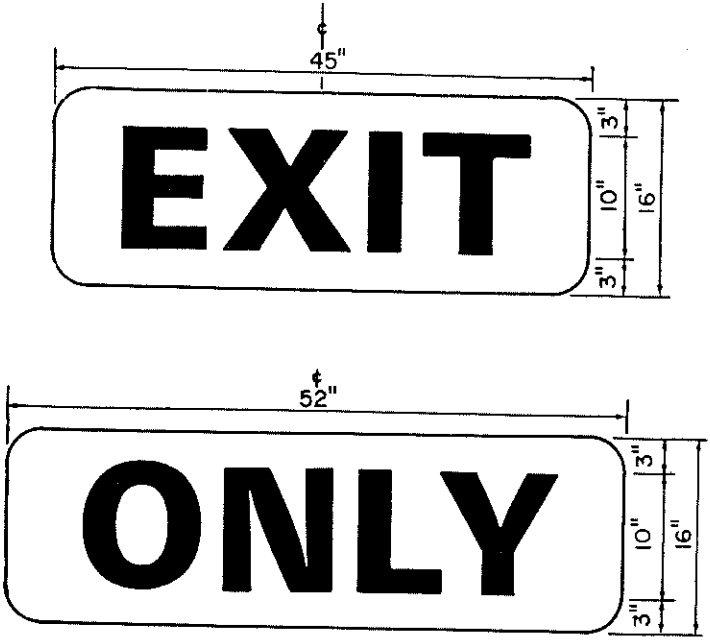


Figure 43 — Emergency Parking Sign

EXIT ONLY Panel



EXIT ONLY Panel (Alternate)

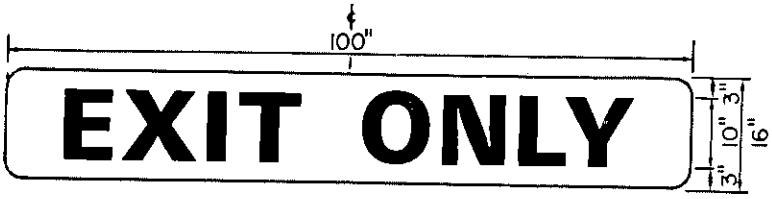


Figure 44 — EXIT ONLY Panel

EMERGENCY PARKING ONLY or EMERGENCY STOPPING ONLY. This sign may be used at random intervals where a clear need exists. Figure 43 shows this sign.

SLOWER TRAFFIC KEEP RIGHT. This sign may be used to maintain orderly use of lanes, as required. Similar signs with special messages to control traffic by lanes for unusual conditions may also be used.

SPEED LIMIT. Speed limit signs should be of a standard design determined for Statewide use. The legend necessarily must be in accord with applicable State law and for this reason is not prescribed in detail in this Manual.

YIELD. This sign should only be used on entrances to the Interstate System where traffic engineering study indicates the sign will be conducive to safe and orderly merging entrance movements. The yield sign shall not be used where adequate acceleration lanes exist.

WRONG WAY. This sign, rectangular in shape and carrying a white message on a red reflectorized background, may be used on interchange exit ramps at an appropriate distance from the ramp terminal as a companion to the standard "DO NOT ENTER" sign.

32. SPECIAL SIGNING ON APPROACHES AND CONNECTING ROADWAYS

Adequate attention should be given to the identification of entrances to the Interstate Highway System from roads of lesser importance. The standard arrangement of route markers, auxiliary junction and directional markers, and destination signs on the approach roads may in some cases be ineffective for some of the more critical interchanges, in which case the Interstate highway signing standards may have to be extended to the approach roads.

Frontage Roads

While the provisions of this Manual pertain chiefly to the through traffic lanes and the interchange turning roadways of the Interstate System, the adjacent signing is also important. Signing for frontage roads need not be to the same high standard as is used on the through traffic roadways of the Interstate System, but otherwise should be consistent with existing State standards for roadways of this type. 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 the drivers confusing or conflicting information, or creating sight obstructions.

33. PAVEMENT MARKING

All pavement markings within the limits of the Interstate System rights-of-way shall be reflectorized and in accordance with the Manual on Uniform Traffic Control Devices. Solid yellow shall be used for all barrier line applications and white for all other pavement marking.

Pavement marking may be done with painted lines, thermo-plastic compounds, plastic striping, or raised unit markers.

Edge Marking

Edge marking shall be used on all sections of the Interstate System because of its unique value as a visual reference for the guidance of drivers especially during adverse weather and visibility conditions. Edge marking shall consist of a solid, unbroken white line along both edges of the main traveled portion of the roadway pavement, except at ramp terminals. Where the pavement surfacing is extended over all or a part of the shoulder width, the edge marking is to be between the traffic lane and the shoulder area. (See Figure 45)

Exit Ramp Marking

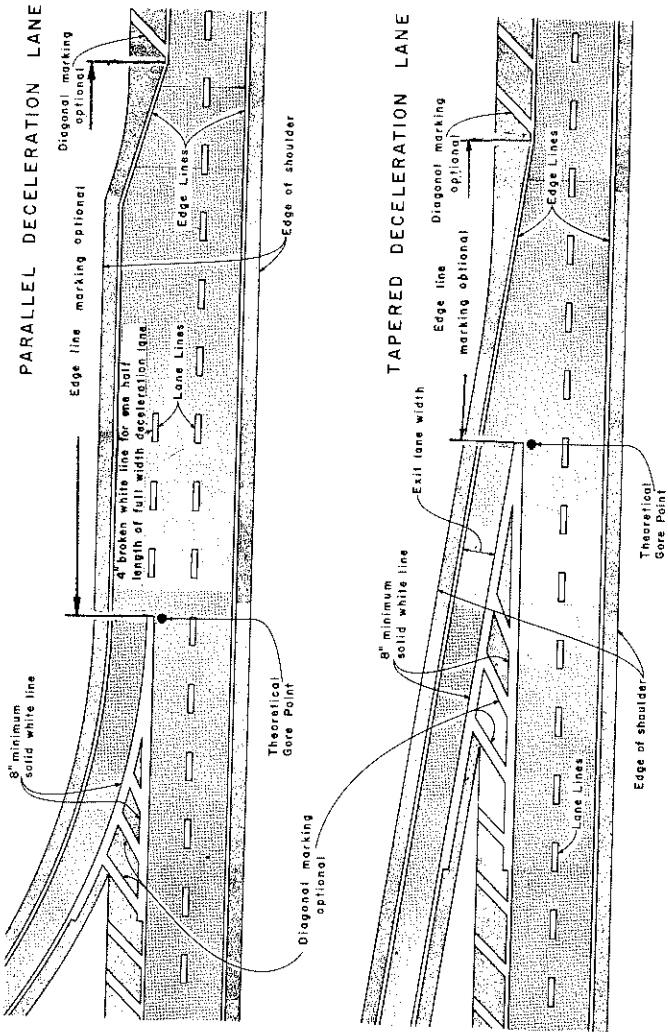
Exit ramp marking shall be placed in accordance with the design shown in Figure 45.

Entrance Ramp Marking

Entrance ramp marking shall be placed in accordance with the design shown in Figure 46.

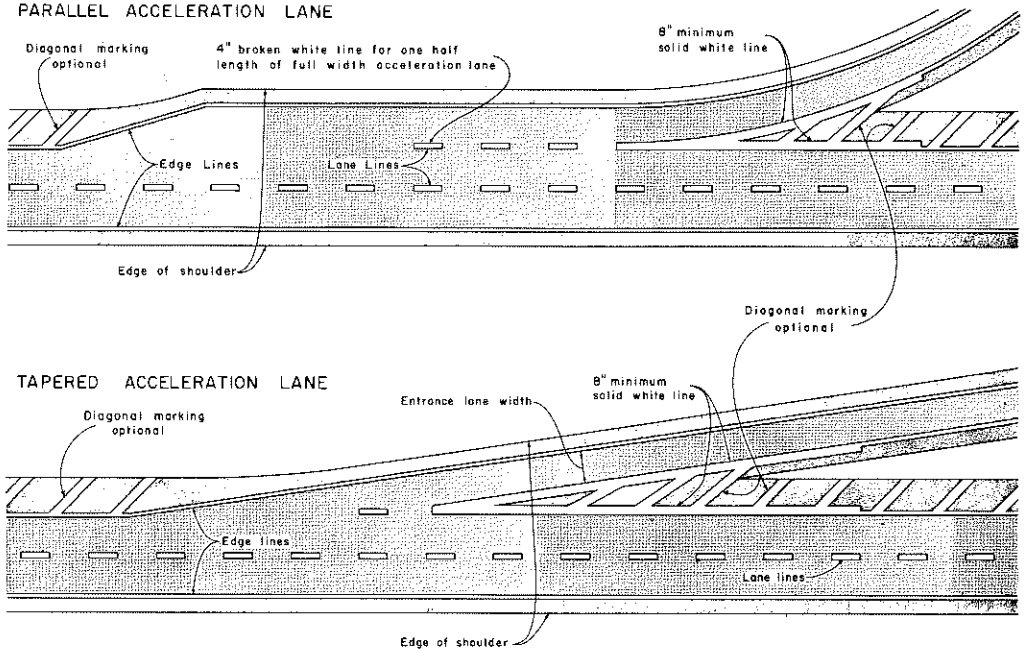
Other Markings

Oversize pavement arrows may be used to assist motorists in avoiding wrong way movement at interchange ramp terminals and at connections with frontage roads. Pavement arrows may also be helpful as a supplement to the signing required for lane drop situations.



Not to scale

Figure 45 — Exit Ramp Marking



Not to scale

Figure 46 — Entrance Ramp Marking

Special transverse markings may be placed as a means of detecting speed violators from the air. The markings may be placed on either the paved shoulders of the Interstate highway, or on the traveled way.

34. DELINEATORS

General Application

Delineators shall be placed continuously on all sections, both tangent and curve, of the Interstate System except that they are optional on sections between interchanges where fixed-source lighting is in operation. Delineation shall be placed on all roadways at all interchanges regardless of the presence of fixed-source lighting.

Delineators are to be installed along the right side of all through roadways of the Interstate System, and may, where necessary, be used on the left side as well. Determinations concerning delineation should be predicated on the need for a clearly marked course for Interstate drivers. If there is some uncertainty created as to the course of the roadway by the use of delineators on both sides the installation cannot be expected to produce satisfactory operating conditions.

In addition to the delineation on the through roadway, delineators are also required on interchange ramps and on acceleration and deceleration lanes.

Typical installations are shown in Figure 47.

Gore areas may need special emphasis in delineation over and above the requirements set forth as a minimum.

Design

The color of delineators on the main roadways shall be white and the color on speed change lanes and connecting roadways shall be amber. The amber units shall be double or vertically elongated and shall extend to the outer limits of the speed change lanes at each interchange.

The delineators may consist of glass or plastic prismatic reflective elements with reflective sheeting sealed therein, or other reflective coatings with a surface area sufficient to contain an inscribed circle not less than 3 inches in diameter.

Delineators shall be so positioned and of such a quality that they will be clearly visible for 1,000 feet during night time under

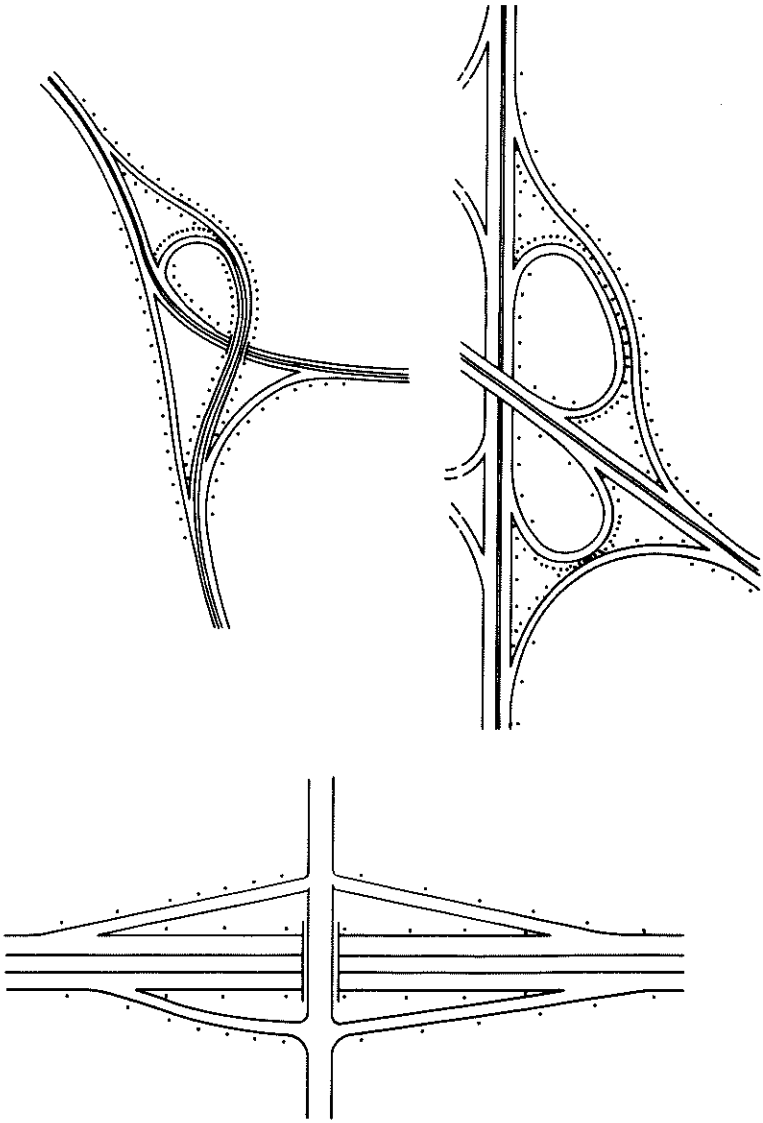


Figure 47 — Typical Interchange Delineation

normal weather and atmospheric conditions when illuminated by the up-beam of standard headlights. Delineators shall be placed on posts assembled and erected in such a manner that the top of the reflective unit is three to four feet above the elevation of the pavement edge. They shall be placed along the Interstate roadways at a uniform distance of not less than 2 feet beyond the outer edge of the surfaced shoulder or the face of an unmountable curb or in the same lateral position as the guardrail.

Longitudinal Spacing

Delineators shall be spaced not less than 200 feet nor more than 528 feet apart except that the spacing through interchange areas and on connecting roadways may be reduced. The flexibility in spacing requirements is intended to take account of varying topography and climatic conditions that differ from State to State, but the normal spacing of delineators should be the same within any given State.

Delineators on acceleration and deceleration lanes and on connecting roadways shall be spaced at a maximum of 100 feet. Interchange ramp design is sufficiently varied that no single delineator spacing will fit every situation. The spacing values shown in Table II will be useful as a guide to the placement of delineators on connecting roadways. It is emphasized that the purpose of delineation is to establish a clear path for a driver and it is this criterion rather than any arbitrary decision as to delineator placement which governs.

Hazard Marking

Triple amber delineators or reflectorized and diagonally striped vertical rectangular surfaces may be used to identify the presence of roadway hazards such as piers, parapets or other fixed unyielding objects near the roadway.

Median Crossovers

Where median crossovers are provided for official or emergency use and where these crossovers are to be marked, a double yellow delineator should be placed on the left side of the through roadway on the far side of the crossover for each roadway. The "NO U TURN" sign should not be placed at a median crossover.

TABLE II

Delineator Spacing				
Radius of Curve	Spacing on Curve	Spacing in Advance & Beyond Curve (Feet)		
(Feet)	(Feet)	1st	2nd	3rd
50	20	40	65	125
150	30	60	90	180
200	35	70	110	215
250	40	85	125	250
300	50	95	145	290
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1,000	90	185	275	300

APPENDIX A

NATIONAL STANDARDS AND CRITERIA FOR OFFICIAL HIGHWAY SIGNS WITHIN INTERSTATE RIGHTS-OF-WAY GIVING SPECIFIC SERVICE INFORMATION FOR THE TRAVELING PUBLIC

PURPOSE. To establish standards for the erection of signs and displays within the right-of-way of the Interstate highway system which will give the traveling public specific information as to gas, food, or lodging available on the crossroad at or near the interchanges.

DEFINITIONS. *Specific information panel* is rectangular in shape consisting of: (a) the words GAS, FOOD or LODGING and directional information, and (b) one or more individual business signs mounted on the panel. This panel shall be located in the same manner as other official traffic signs readable from the main traveled way.

Roadside area information panel or display is erected in safety rest areas, scenic overlooks and similar roadside areas, for providing motorists with specific services information. This panel or display shall be located so as not to be readable from the main traveled way.

A business sign is a separately attached sign mounted on the specific information panel or roadside area information panel to show the name and/or brand or trademark of the motorist services available on the crossroad at or near the interchange. Nationally, regionally or locally known commercial symbols or trademarks for service stations, restaurants and motels shall be used when applicable. The brand or trademark identification symbol used on the business sign shall be reproduced with the colors and general shape consistent with customary use. Any messages, trademarks or brand symbols which interfere with, imitate, or resemble any official warning or regulatory traffic sign, signal or device will not be permitted.

LOCATION. The specific information panels are designed for application at rural interchanges where a number of motorist services normally are not available. Specific information panels are not to be installed within suburban or urban areas, except on

circumferential, bypass, or beltway-type routes where existing roadside development is not urban in character.

A separate specific information panel shall be provided on the interchange approach for each qualified type of motorist service. Where a qualified type of motorist service is not available at an interchange, the specific panel should not be erected.

The specific information panels shall be erected between the previous interchange and in advance of the first advance guide sign for the approaching interchange. These panels shall be located in the same general manner as other official traffic signs in advance of the interchange, readable from the main traveled way. The panels should be erected in advance of the first advance guide sign and no panel shall be closer than 1,500 feet to any major guide signs, with at least an 800-foot spacing between the information panels. In the direction of traffic the successive panels shall be those for LODGING, FOOD, GAS, in that order.

The specific information panel shall not be erected at an interchange where an exit from the Interstate highway is provided, but no entrance ramp exists at that interchange or another reasonably convenient location that would permit a motorist to proceed in the desired direction of travel without undue indirection or use of poor connecting roads.

The motorists services information, shown on the specific information panels, shall be repeated on the signs located along the interchange ramp or at the ramp terminal where the service installations are not visible from the ramp terminal. The signs shall be the same in shape, color and message as those shown on the specific information panels, together with an arrow showing the directions for the different services and, where needed, the mileage to the service installation. Normally, this signing will not be necessary at double-exit interchanges. These sign legends or symbols shall be smaller (minimum 4-inch letter height except any legend on a symbol shall be in proportion to the size of the symbol), than those shown on the specific information panels.

As a confirmation to the specific information panels, a sign carrying the legend "GAS-FOOD-LODGING" and where applicable, "PHONE" and "HOSPITAL" shall be erected below the ground mounted exit direction sign; or it may be a separate sign with appropriate directional information erected a minimum of 800 feet following the last advance guide sign. This sign shall have reflectorized white letters and border on a blue background. The legend shall be 10-inch capital letters.

Roadside area information panels and displays for subsequent interchanges shall be located within safety rest areas. Motorist services information may be displayed in one roadside area for all interchanges preceding the next roadside area.

CRITERIA TO DETERMINE SPECIFIC INFORMATION PERMITTED. The following are minimum criteria for permitting business signs to be erected on the specific information panel or the roadside area information panel:

The individual business installation whose name, symbol, or trademark appears on a business sign, shall have given written assurance of its conformity with all applicable laws concerning the provision of public accommodations without regard to race, religion, color or national origin, and shall not be in continuing breach of such assurance.

The maximum distance that the GAS, FOOD, or LODGING services can be located from the main traveled way to qualify for a business sign shall be in accordance with State standards, but not to exceed the following requirements:

(a) Not to exceed 3 miles in either direction if within that 3-mile limit one or more of the service types considered is available, or if not available.
(b) Continue in 3-mile increments of consideration as in (a) up to a 15-mile maximum if necessary to find an available service of the type being considered.
(c) Services beyond the 15-mile limit shall not qualify for signing.

GAS and associated services to qualify for erection on a panel shall include:

(a) Vehicle services such as fuel, oil, lubrication, tire repair and water.
(b) Rest room facilities and drinking water.
(c) Continuous operation at least 16 hours per day, 7 days a week.
(d) Telephone.

FOOD to qualify for erection on a panel shall include:

(a) Where required, licensing or approval by State or political subdivision.
(b) Continuous operation to serve 3 meals a day, 7 days a week.

(c) Telephone.

LODGING to qualify for erection on a panel shall include:

(a) Where required, licensing or approval by State or political subdivision.
(b) Adequate sleeping accommodations.
(c) Telephone.

COMPOSITION. The GAS specific information panel shall be limited to six business signs; the FOOD and the LODGING specific information panel shall be limited to four business signs each. For a single exit interchange, the business signs shall be arranged on the panel, with a maximum of two horizontal rows. When the number of business signs are 1/2 or less the maximum permitted, the arrangement shall be in one horizontal row. The maximum in one horizontal row shall be limited to 1/2 the maximum permitted on the panel. These signs are to be mounted on the panel in the order of the travel distance measured from the point of the intersection of the main traveled way and the exit traveled way, the closest at the top left, and the next closest at the bottom left, etc.

For a double-exit interchange, the specific information panels will consist of two sections where the same type of motorist services are to be signed for each exit; the arrangement of the business signs on each section of the panel shall be in accordance with the requirements for a single-exit specific information panel. For double exit interchanges, the travel distance shall be measured from the intersection of the main traveled way and the first exit traveled way.

In the case of a double-exit interchange the specific information panel shall display the appropriate business sign(or signs) and directional information for each exit. The top section of this panel will display the supplemental signs for the first exit with the directional legend "NEXT RIGHT." The lower section of the panel will display the business signs for the second exit with the directional legend "SECOND RIGHT." Where exit numbering is used, it would be desirable to use the exit number on the panels, such as "EXIT 28" in place of the "NEXT RIGHT" or "SECOND RIGHT" message. The number of business signs on this panel (both sections) shall be limited to six for GAS, or four each for FOOD and LODGING.

SIZE. The business signs displayed on the GAS information panel shall be contained within a 36-inch wide and a 24-inch high rectangular background area, including border. The business signs on the FOOD and LODGING information panels shall be contained within a 54-inch wide and a 24-inch high rectangular background area, including border.

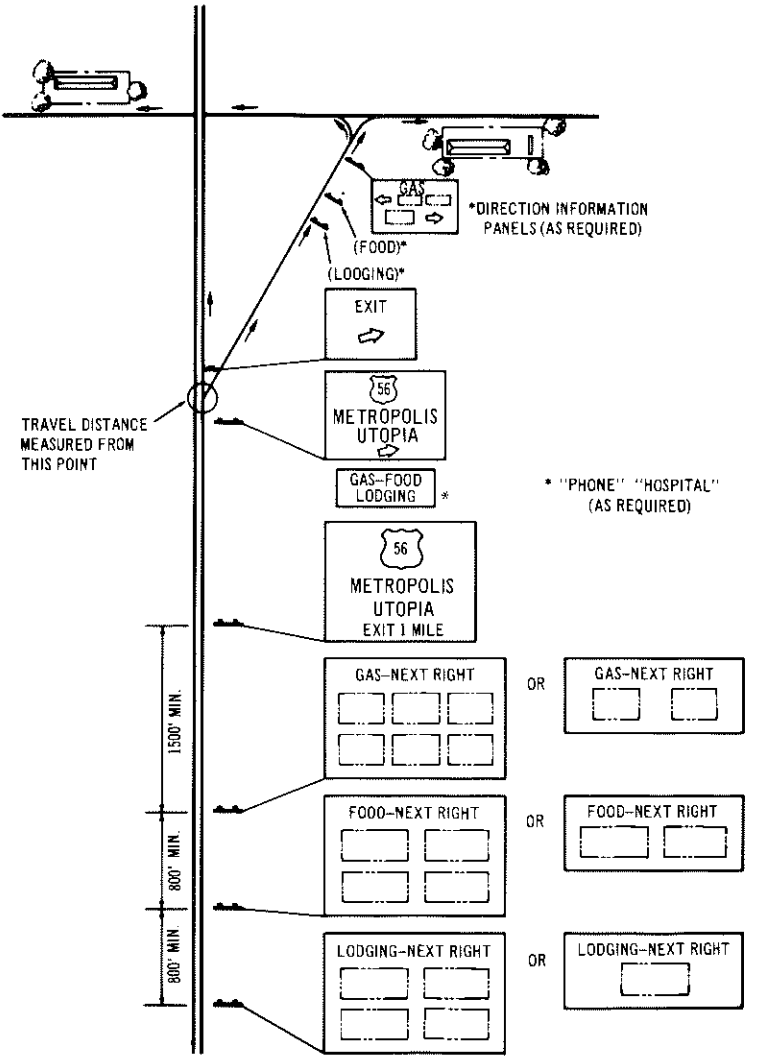
For the single-exit interchange, the maximum size of the specific information panel shall be 12 feet wide and 8 feet high, including border; the minimum size shall be 12 feet wide and 5 feet high, including border. (See Sketches Nos. A1 and A2)

For double-exit interchanges, where the same type of motorist services are to be signed for each exit, the specific information panel shall consist of two 12-foot wide and 5-foot high sections, one for each exit. (See Sketches Nos. A3 and A4 for this signing condition.) Each section shall be capable of accommodating a maximum of either 3 gas business signs or 2 food or lodging business signs. For double-exit interchanges where a type of motorist service is to be signed for only one exit, only one 12-foot wide by 5-foot high specific information panel shall be used.

Latitude in design is permitted in provision of roadside area information signs or displays. Design by the State should include considerations of the architectural treatment of the buildings and other structures in the roadside area. Additional considerations are recreational, historic, and other sightseeing attractions in the area. Flexibility in design is expected and desirable. Standard symbols and trademarks, where applicable, can be used for glance recognition.

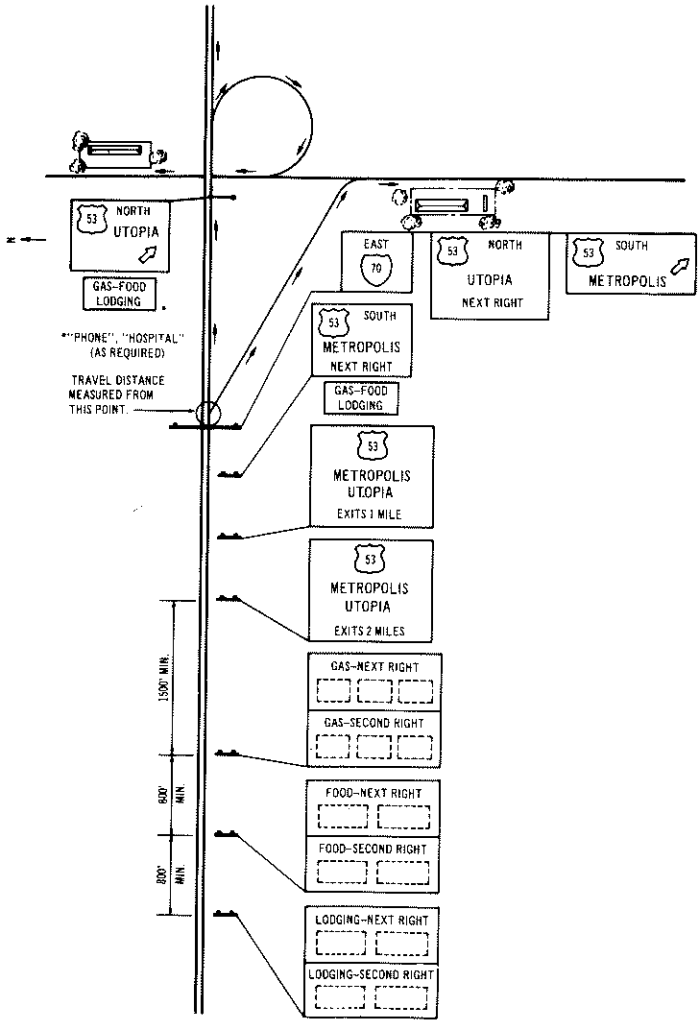
COLOR, REFLECTORIZATION AND ILLUMINATION. The background color of the specific information panel shall be blue with a white reflectorized border. The words GAS, FOOD and LODGING and exit direction messages shall be white reflectorized 10-inch capital letters mounted on the blue panel.

The business sign color shall be a white message on a blue background, except that colors consistent with customary use should be used with nationally, regionally or locally known symbols or trademarks. The principal legend on the business sign shall be at least 8 inches in height, whether capitals or lower case; except that where the symbol or trademark is used alone for the business sign, any legend on the symbol shall be in proportion to the size of symbol, consistent with customary use. The business signs, symbols or trademarks shall have a white border.



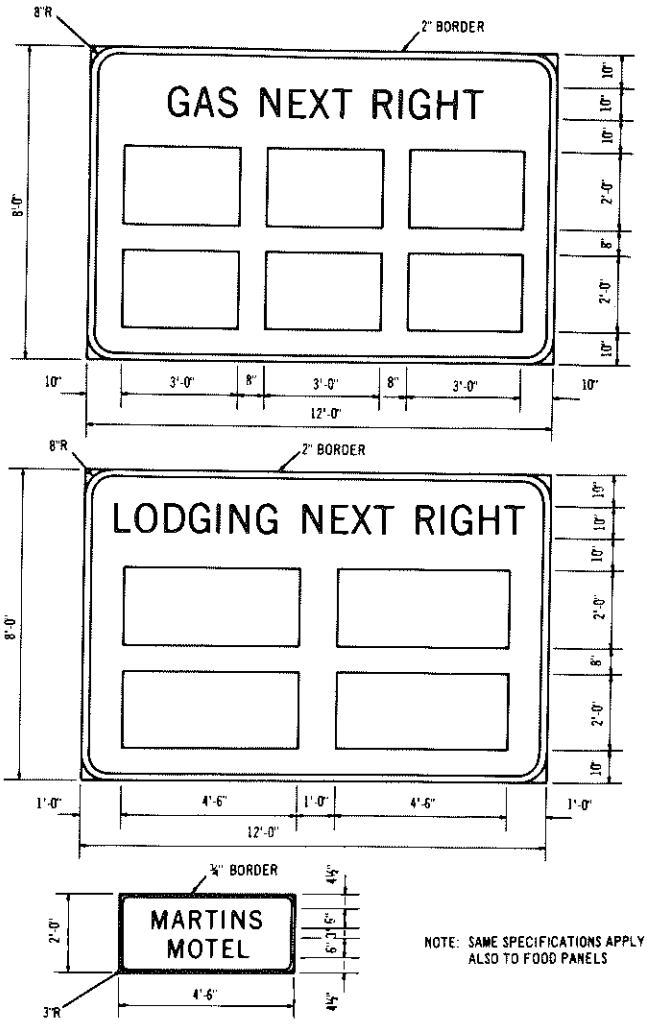
Reference: National Standards and Criteria for Official Highway Signs Within Interstate Rights-of-Way Giving Specific Information for the Traveling Public. February 25, 1969.

Figure A1 — Typical Signing for Single Exit Interchange



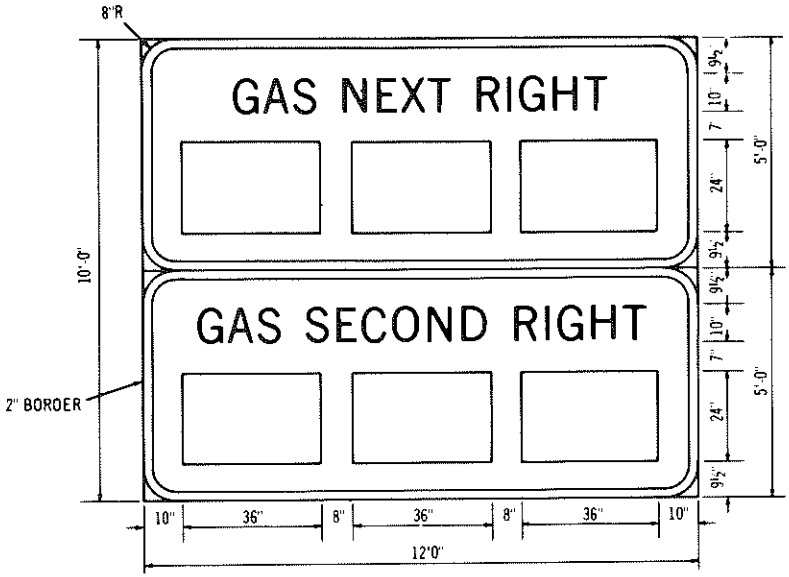
Reference: National Standards and Criteria for Official Highway Signs Within Interstate Rights-of Way Giving Specific Information for the Traveling Public. February 25, 1969.

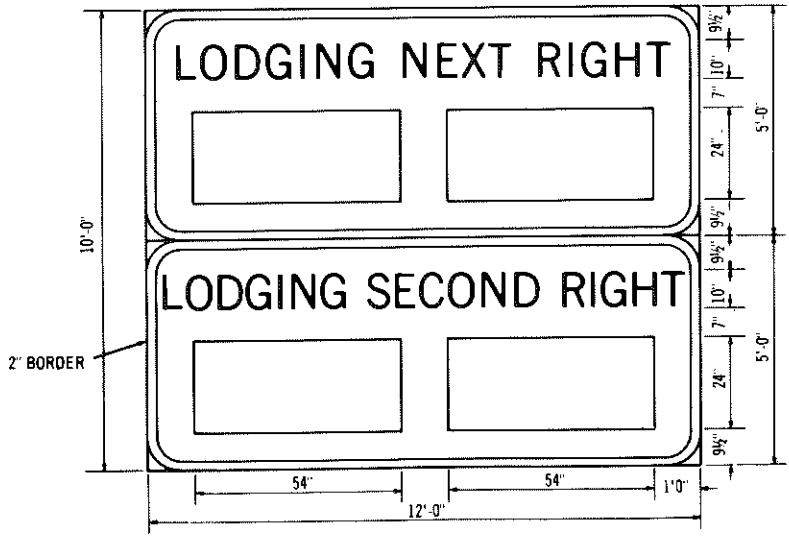
Figure A2 — Typical Signing for Double Exit Interchange



Reference: National Standards and Criteria for Official Highway Signs Within Interstate Rights-of-Way Giving Specific Information for the Traveling Public. February 25, 1969.

Figure A3 — Specific Information Panel for Single Exit Interchange





NOTE: SAME SPECIFICATIONS APPLY
ALSO TO FOOD PANELS

Reference: National Standards and Criteria for Official Highway Signs Within Interstate Rights-of-Way Giving Specific Information for the Traveling Public. February 25, 1969.

Figure A4 — Specific Information Panel for Double Exit Interchange

The specific information panel may be illuminated, but on any interchange approach all panels shall be consistent with the treatment for other guide signs for that approach.

STRUCTURAL DESIGN AND TRANSVERSE LOCATION OF SIGNS AND SIGN SUPPORTS. Where signs along the roadside cannot be placed at a safe distance away from the line of traffic, or in an otherwise protected site, they shall be so designed to minimize impact forces when hit by out-of-control vehicles.

INCLUSIVENESS OF USE. States electing to provide service signing as described herein may choose to install either:

(a) Specific information panels only,
(b) Roadside area information panels or displays only, or
(c) Both specific information panels and roadside area information panels or displays.

Procedures to be followed by the States in applying for and obtaining approval for the erection of service signing shall be as prescribed by the Federal Highway Administration.

APPENDIX B

INTERPRETATIONS ISSUED SUBSEQUENT TO AUGUST 1, 1969 IN ACCORDANCE WITH IM 40-3-69

INTERPRETATION MEMORANDUM MUTCD NO. 61-51 INTERPRETATION MEMORANDUM INTERSTATE MANUAL NO. 61-68 (SIGNING FOR PRIVATELY-OWNED FACILITIES WITHIN HIGHWAY RIGHT-OF-WAY)

The State of West Virginia requested guidance in the establishment of a policy setting forth the limits to which signs for privately-owned facilities may be erected. In addition, they recommend that only signs for publicly-owned facilities be permitted, excepting, of course, services signing.

Concurrence was given to the State's recommendation in that only signs for publicly-owned facilities be permitted (within the right-of-way), excepting service signing. Any signing outside the right-of-way would be governed by the "National Standards for Directional and Other Official Signs" as published by the Department of Transportation in February 1969.

INTERPRETATION MEMORANDUM MUTCD NO. 61-52 (MODIFIED STRIPING ON TWO-LANE HIGHWAYS)

The State of Texas recently requested reconsideration of a previous decision regarding the striping of a four-foot flush median in the center of a two-lane, two-way roadway.

As proposed, the State's standard forty-four (44) foot crown width section would consist of two eight (8) foot shoulders, two

twelve (12) foot lanes, and a four (4) foot flush median delineated by dashed white stripes. The basic consideration was to create a "neutral zone" between opposing traffic in hopes of reducing head-on type accidents due to minor lateral movements of approaching vehicles.

To evaluate such a design, the State marked three locations accordingly, and traffic operations were observed. The State reported that the traffic remains centered within the respective lanes and that little or no lateral movement is made when meeting opposing traffic. Also there was no hesitance noted on the part of the motorist to cross the dashed lines when desiring to pass where passing is permitted.

On the basis of the above experience, no objection was made to the request to delineate a flush median in the manner and under the circumstances as proposed by the State.

INTERPRETATION MEMORANDUM MUTCD NO. 61-53 INTERPRETATION MEMORANDUM INTERSTATE MANUAL NO. 61-69 (RECREATION SIGNING)

The State of Montana submitted a request for a change in the Interstate Signing Manual and MUTCD regarding background color for advanced and exit direction signing to recreation areas.

The specific proposal was to allow white message on brown background for supplemental, advance, and exit direction signing along the main lanes of the Interstate at an interchange which leads to an extensive recreation area maintained by the State Fish and Game Commission.

In keeping with the present understanding of the current draft of the Interstate Sign Manual, the brown background is not being proposed for use on the Interstate System. The background color on all advance and exit direction signing is to remain green and, therefore, the proposal to use white on brown on these type signs on the Interstate would not be in order.

The current draft of the MUTCD does include the white on brown for recreational area signs. Therefore, the use of this color combination for signing along frontage roads and ABC System routes would be acceptable.

INTERPRETATION MEMORANDUM MUTCD NO. 61-54 (SCHOOL SIGNS AND FLASHING BEACONS)

The State of Alabama requested an interpretation on their proposed signing of school zones, speed limits within school zones, and school crossings. The proposed signing included the following: (a) An overhead installation combining the school zone message with the speed limit. Three horizontal panels were proposed; the top and bottom of which were black legend on yellow background, and the middle panel was black legend on white background and contained two yellow flashing beacons mounted horizontally. (2) A typical roadside sequence consisting of the standard warning sign for school zones, a school speed limit sign having black legend on white background with vertical yellow flashing beacons mounted within the sign and the standard warning for school crossing. (3) A combined installation of the standard warning sign for school crossing mounted on the same support as, and above the school speed limit sign as described in (2) above.

The interpretation was given in the same sequence as above and is as follows: (1) The proposed sign is not in compliance with the Manual. The standard school speed limit sign may, where required, be mounted in an overhead position. (2) The school zone, and school crossing signs proposed are standard and, therefore, were in compliance with the Manual. The school speed limit sign as proposed meets the provisions contained in the latest draft of the new MUTCD. (3) The combination of a warning sign and regulatory sign on the same support is not in accordance with the Manual. These signs should be separated. The addition of the SCHOOL sign on top of the speed limit sign, as proposed in the new Manual, would provide a solution to this situation.

INTERPRETATION MEMORANDUM MUTCD NO. 61-55 (USE OF SUPPLEMENTAL SIGN WITH WARNING SIGN)

The State of Wyoming submitted a request to permit the use of a separate distance panel below warning signs. Similar requests had been previously submitted and rejected by the AASHO Special Committee on Signing and Marking Interstate System (Interpretation). The two previous interpretations were contained in Interpretation Memoranda MUTCD No. 61-11 and 61-47.

The latest request was based primarily on the fact that larger letters can be used on the warning signs if the distance to the hazard is shown on a separate panel. Also, standard warning signs could be used at any location, and the only variable sign would be the supplemental panel. Based on Wyoming's experience this would result in greater flexibility of usage, and less sign stock would be required.

The present draft of the new MUTCD contains wording that would permit the use of a separate panel with standard warning signs.

Based on the material presented by the State and pending final approval of the proposed revisions to the MUTCD, permissive use of supplemental panels was given. This was done with the understanding that the supplemental panel will be rectangular in shape and contain only one line of legend. The colors shall be black legend and border on yellow background when used with warning signs and orange background when used with construction and maintenance signs, if and when the orange color is adopted for this use.

INTERPRETATION MEMORANDUM MUTCD NO. 61-56 (LEFT TURN SIGNAL INDICATION)

The State of Missouri recently requested an interpretation as to whether or not the left turn arrow could be extinguished and immediately replaced with a circular green indication in a specific situation. The situation in question involved an approach to a signalized intersection having separate signal indications for each lane. One of these lanes is a channelized left turn lane where a left turn phase is provided, and the left turn is allowed during the through green phase.

The left turn arrow can be extinguished and immediately replaced with a circular green. However, to provide a clearance for the protected left turn the appearance of the green for the movement opposing the left turn must be delayed for a period of time sufficient for clearance of the left turn.

INTERPRETATION MEMORANDUM MUTCD NO. 61-57 (HIGH SIGNS TO DENOTE CITIZENS BAND CHANNEL RADIO SERVICE)

The State of Alabama submitted a request to permit the installation of signs along the Federal-aid highway system to denote citizen's band channel radio service. It was the State's position that these signs, denoting Channel 9, serve a definite purpose in public service for the people in the counties involved and for travelers and tourists for emergency purposes.

After reviewing the State's submission, it was determined that the sign denoting an area where CB Channel 9 is monitored does not fall within the types of signs approved for display along the Federal-aid highway system. Although this sign has been classified by some States as an information sign, 90-95% of the motorists would have no need for such information. Rather, it is the type of information which could be displayed in official rest areas and not along the roadway. With the many and varied official regulatory, warning, and guide signs occupying the highway right-of-way it

was recommended that the subject sign not be approved for use along the highway.

INTERPRETATION MEMORANDUM INTERSTATE NO. 61-70 (USE OF "BUCKLE UP" SIGN)

The State of Alabama submitted a request for interpretation on the use of a "Buckle Up" sign at entrance ramps and adjacent to the main lanes on the Interstate System in an effort to call the motorists' attention to the use of seatbelts.

While the thought behind this request is certainly commendable, it is interpreted that the Manual does not permit the use of a sign of this type on the Interstate System.

INTERPRETATION MEMORANDUM INTERSTATE NO. 61-71 (USE OF "NO U–TURN ANY PLACE" SIGN)

The State of Nebraska requested an interpretation on the use of a "No U Turn Any Place" sign at random locations on the median to discourage motorists from making U-turns. It was the State's position that this message would have a more specific meaning to the motorist than messages such as "Keep Off Median" and "Emergency and Authorized Vehicles Only."

This request and previous interpretations were reviewed, and it was noted that an identical request was denied by the AASHO Interpretation Committee in Interpretation Memorandum No. 61-62. Nothing new was found in this latest request that would lead to a reversal of the previous finding. Therefore, the finding was made that the use of the "No U-Turn" sign for prohibiting U-turns across the median is believed to be adequate, especially when installed at random locations.

INTERPRETATION MEMORANDUM
INTERSTATE NO. 61-72
INTERPRETATION MEMORANDUM
MUTCD NO. 61-58
(USE OF SERVICE SIGNING IN URBAN AREAS)

The State of New Mexico requested an interpretation on the use of service signing at interchanges within an urban area. The Department's practice in the past has been to erect such signs in advance of the first exit leading to the municipality. When several interchanges are within the municipality a supplemental sign is added at the first interchange to show "NEXT Exits." Then service signing is omitted at the remaining interchanges within the area.

In reviewing the latest drafts of both the MUTCD and the Interstate Signing Manual, the same wording pertaining to signing for services is used – "It is also assumed that service signing will not be required in urban areas."

The basis for use of service signs should depend on the driver's recognition of an area having urban characteristics well in advance of the interchanges in question. If it is readily apparent to the driver, from viewing the surrounding land use, that he is approaching an urban area, then service signing should not be used at interchanges within this area. On the other hand, interchanges located within specified urban limits but appearing to be rural in nature due to sparse land use, consideration should be given to the use of service signing based on the State's policy and criteria.

APPENDIX C
PURPOSE AND POLICY IN THE ESTABLISHMENT OF A MARKING SYSTEM OF THE ROUTES COMPRISING THE NATIONAL SYSTEM OF INTERSTATE AND DEFENSE HIGHWAYS

August 14, 1957

The National System of Interstate and Defense highways known as the "Interstate System" will be a part of the State Highway systems of the several States and the District of Columbia and will therefore be maintained, operated and policed by those jurisdictions. It therefore becomes the responsibility of the several States to mark and number the System.

Since these highways join centers of population and defense establishments and join with the major international highways at the Mexican and Canadian borders, they constitute a nationwide network of the most important highways; therefore for the convenience of the motorist there must be continuity and a uniform pattern of marking and numbering these routes without regard to State lines.

In arriving at a route marking and numbering policy the following guides shall be used by the Association.

1. The Executive Committee shall determine and assign the numbers to be used in marking the routes of the Interstate System.
2. For easy and instantaneous identification of routes, a maximum of only two digits will be used in the numbering system, except where it is desirable to add the suffix N., E., S. or W. to properly mark a route.
3. That there will be no Interstate Route bearing the same number designation as a U. S. Numbered Route in any State.
4. That sufficient room be left in assigning numbers to the routes of the Interstate System to allow for future expansion of the system and keep the numbering pattern in sequence.
5. That no area has any vested right to any route number.
6. That the routes be so marked as to give maximum continuity between major control points, and that dual Interstate numbering be held to a minimum consistent with proper travel guidance.

7. That U. S. Route numbers may be used in conjunction with Interstate Route markers where the U. S. Route leads into the Interstate Route, follows it for a reasonable distance, and then departs again from the Interstate Route.
8. That Interstate Highway patterns in urban areas be carefully numbered and marked for the safety and convenience of the traveling public, and to insure uniformity of practice that each State Highway Department is to submit its plan of numbering and marking of such urban areas to the Executive Committee for approval prior to the erection of markers.
9. That a distinctive, easily recognized route marker—shape, color and sizes—be adopted and universally used.