

Part I

SIGNS

A—INTRODUCTION AND GENERAL SPECIFICATIONS

Section 1A-1 Function of Signs

The oldest device for controlling, safeguarding, or expediting traffic is the traffic sign. As in the case of any other type of traffic control device, signs should be used only where necessary and where justified by facts and field studies. Signs are not ordinarily needed to confirm well-known or universally recognized rules of the road, such as that requiring drivers to keep to the right, but they are essential where special regulations apply at specific places or at specific times only, or where hazards are not self-evident. They are also needed to give information as to highway routes, directions, destinations, and points of interest.

1A-2 Scope of Sign Standards

This Manual prescribes standards for the signing of all classes of public highways. To the extent that advanced design has reduced physical hazards and traffic frictions, the need for warning and regulatory signs on modern highways has been eased. On the other hand, the increased volume and speed of traffic on elaborate expressways has made the requirements of directional signing progressively more exacting. The standards in this Manual are designed for the great bulk of the street and highway mileage that constitutes the basic road system. At the same time, however, the special needs of expressways are recognized and, where appropriate, special expressway sign standards are prescribed.

For the purposes of this Manual, "expressways" include all types of high-speed highways, usually characterized by three distinctive features—divided roadways, controlled access, and grade separations at intersections. Where any of these features are lacking, expressway signs may not be fully applicable, and standard signs and signals as otherwise provided for should be used, with such enlargement or other modification as is required to adapt them to expressway conditions.

It must be emphasized that highway signs, and particularly

expressway signs, are not just accessories, to be erected where they appear to be needed after a highway has been designed and built. On the contrary, there must be from the beginning a coordination of signing and geometric design. A dangerous alignment cannot be corrected by signs. An elaborately conceived interchange cannot serve its purpose unless motor-vehicle drivers can be given all necessary directional information by adequate signs, clearly comprehensible and effectively placed.

This Manual also includes two special parts dealing separately with construction and maintenance signing (part V), and with signing for civil defense (part VI). Signing for the protection of the public and the workmen at highway construction and maintenance sites is a specialized operation which, though it uses standard signs, calls for numerous special designs and applications. It is separately treated primarily in order that its specifications will be conveniently available to contractors and highway employees who are not concerned with other parts of this Manual.

Signs for civil defense (with the exception of the Evacuation Route Marker) are strictly for emergency use, and will be posted only in case of civil disaster. They are designed to fit the organized program for emergency traffic control with maximum economy in production, and they conform only to a minimum extent with conventional sign standards.

For the National System of Interstate and Defense Highways the American Association of State Highway Officials has established special standards, approved by the Bureau of Public Roads, consistent with the more generally applicable requirements set forth in this Manual but designed to provide maximum uniformity on a particular system of high-type expressways. The AASHO manual for the Interstate System should be consulted directly for any signing to be done on Interstate highways.²

1A-3 Legal Authority

Traffic signs shall be placed only by the authority of a public body or official having jurisdiction, for the purpose of regulating, warning, or guiding traffic. No traffic sign or its support shall bear any commercial advertising.

Any sign placed on the highway right-of-way without authority by a private organization or individual constitutes a public nuisance. All unofficial and nonessential signs should be removed, as they weaken the value of the necessary signs.

² *Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways*, (1961). American Association of State Highway Officials, 917 National Press Building, Washington 4, D.C.

This, however, should not prohibit authorizing construction contractors and public utility companies, without obtaining specific permission in each case, to erect temporary construction and maintenance signs at work sites to protect the public, equipment, and workmen, provided that such signs conform to the standards of this Manual as to size, shape, and color.

A suitable model for the legal authority for the placing of signs is presented in the Uniform Vehicle Code (secs. 1-139, 11-201, 11-205, 15-104, 15-105, 15-106). Interference with official signs is prohibited in section 11-206 of the same Code.

The regulations set forth by signs should be intelligently enforced. Otherwise, no matter how effectively the signs are designed and placed, the results desired may not be obtained.

1A-4 Standardization of Application

Each standard sign shall be displayed only for the specific purpose prescribed for it in this Manual. Before any new highway or any detour or temporary route is opened to traffic all necessary signs shall be in place.

Signs required by road conditions or restrictions shall be removed immediately when those conditions cease to exist or the restrictions are withdrawn. Guide signs directing traffic to and on temporary routes or detours shall be removed when no longer applicable.

Important as is standardization with respect to design and placement, uniformity of application is at least equally important. Identical conditions should always be marked with the same type of sign, irrespective of where those particular conditions occur.

This Manual provides standards and criteria for the application and use of all types of signs. In any given situation, however, and particularly in circumstances not specifically covered by this Manual, the judgment and experience of the traffic engineer must be depended upon for the proper choice and application of the guiding standards here set forth.

It is recognized that urban conditions differ from rural in such respects as speeds, frequency of intersections, traffic congestion, numbers of pedestrians, parking, and competing lights and displays, and that in many instances signs must be differently applied and located. Where pertinent and practical, therefore, this Manual sets forth separate specifications for rural and urban conditions.

1A-5 Variable Signs

A type of sign that is of growing importance, particularly on high-speed expressways, is the variable sign that will at special

times display emergency warnings, as of fog or icy surfaces ahead, or impose special regulations as to speed, turn prohibitions, or lane movement during peak-traffic periods. Such a sign may be changed manually on the spot, by remote control, or, for some purposes, by automatic controls that can "sense" the conditions that require special sign messages. It may have a single message that is made legible only when required, or several messages, of which one or more can be made legible at any time. There are various ways of accomplishing this, including patterns of incandescent lamps or of neon or fluorescent tubing that can be lighted when desired, translucent panels having the legend on the back side legible only when lighted from behind, or mechanical devices for masking parts of the sign or for the interchanging of panels.

Variable signs should conform to the design specifications generally applicable to standard signs. Because of their special features, however, it may not always be practicable to make them conform in all respects to the accepted standards of shape or (as in the case of fluorescent tubing) of color. They should meet the minimum standards for size and should be erected in accordance with the same requirements of height and clearances as other signs.

1A-6 Excessive Use of Signs

Care should be taken not to install too many signs, especially those of the regulatory and warning types which, if used to excess, tend to lose their effectiveness. A conservative use of regulatory and warning signs is recommended. On the other hand, a frequent display of route markers and directional signs to keep the driver informed of his location and his course will not lessen their value.

1A-7 Classification of Signs

Functionally signs are classified as follows:

Regulatory signs, giving the highway user notice of traffic laws or regulations that apply at a given place or on a given highway, disregard of which is punishable as an infraction, violation, or misdemeanor.

Warning signs, calling attention to conditions in or adjacent to a highway or street that are potentially hazardous to traffic operations.

Guide signs, showing route designations, destinations, directions, distances, points of interest, and other geographical or cultural information.

In addition to this functional classification it is sometimes desirable to classify according to special applications. Certain signs in all three of the above groups are distinguished in this Manual as expressway signs, and separate treatment is accorded to construction and maintenance signing (part V) and civil defense signs (part VI).

1A-8 Standardization of Signs

All signs hereafter installed on any highway shall conform to the standards set forth in this Manual. In situations where messages are required other than those herein provided for, the signs shall be of the same shape and color as standard signs of the same functional type.

The term "legend" as used in this Manual includes all word messages and symbol designs that are intended to convey specific meanings.

The basic requirements of a highway sign are that it be recognized as such, that it be legible for those who are to be informed by it, and that it be understood in time to permit a proper response. This means high visibility, lettering or symbols of adequate size, and a short legend for quick comprehension. Standardized colors and shapes should be used so that the several classes of traffic signs can be promptly recognized. The legend should be so limited as to be completely readable during the few seconds that a sign is visible to a driver approaching it at high speed. Simplicity and uniformity in design, position, and application are of the greatest importance.

As rapidly as is economically feasible, existing signs of non-standard design or application should be replaced by new standard signs. Signs that are not dangerously inconsistent with current standards or not clearly inadequate may remain in use for a reasonable period of normal service life. Signs of sub-standard size or design, if otherwise suitable, should be relegated to minor roads or secondary streets.

1A-9 Design

Uniformity in design includes shape, color, dimensions, symbols, wording, lettering, and illumination or reflectorization. The Bureau of Public Roads, on request, will furnish to State and local highway and traffic authorities, sign manufacturers, and similarly interested agencies, detailed drawings of the standard signs illustrated in this Manual. These designs, both of symbols and of word messages, have been approved by the National Joint Committee on Uniform Traffic Control Devices after a thorough review of the varying designs used in many States, supplemented

by test studies. Standardization of these designs does not preclude further improvement by minor changes in the proportion of symbols, stroke-width and height of letters, width of borders, or layout of word messages, but **all shapes and colors shall be as indicated, all symbols shall be unmistakably similar to those shown, and where a word message is applicable the wording shall be as herein provided.**

In the specifications here given for individual signs, the legend, color, and size are shown in the accompanying illustrations, and are not always detailed in the text.

1A-10 Shapes

The significance of sign shapes is standardized as follows:

The octagon shall be reserved exclusively for the Stop sign.

The equilateral triangle, with one point downward, shall be reserved exclusively for the Yield sign.

The round shape shall be used for the advance warning of a railroad crossing, and for the civil defense Evacuation Route Marker. It is also used for some State Route Markers.

The diamond shape shall be used only to warn of existing or possible hazards either in the roadway or adjacent thereto.

Regulatory signs, with the exception of Stop signs and Yield signs, shall be rectangular, ordinarily with the longer dimension vertical.

Guide signs, with the exception of certain route markers, shall be rectangular, ordinarily with the longer dimension horizontal.

Other shapes are reserved for special purposes; for example, the shield or other characteristic design for route markers on Interstate, U.S., and State highway routes, and the crossbuck for railroad crossings.

1A-11 Colors³

Warning signs, with the exception of the railroad crossbuck sign, shall have a background of "highway yellow" with black legend.

Regulatory signs, with the exception of the red Stop sign, the yellow Yield sign, and certain urban parking signs (sec. 1B-31), shall have a white background with black legend or, optionally for signs exceeding 30 inches by 36 inches in size, a black background with white legend.

Interstate.—Standards for the Interstate System permit only a white background for all black and white regulatory signs.

³ Color cards showing the correct colors for highway signs may be obtained from the Bureau of Public Roads on request.

Guide signs, with the exception of certain route markers and Rest Area and Services signs, shall use only the colors white, black, and green. Destination, Distance, and Information signs, except Rest Area and Services signs for which special distinctive designs are permitted, shall have a black legend on a white background, white legend on a black background, or white legend on a green background. U.S. route markers, and auxiliary markers used in assemblies with them to show junctions, turns, directions, and alternates, shall have a black legend on a white background. Special exceptions for particular signs are noted in the specifications dealing with those signs.

Interstate.—Interstate route markers and their auxiliaries are of special colors (sec. 1D-10). For other guide signs, standards for the Interstate System specify a green background with white legend or, for Rest Area and for Services signs, a blue background with white legend.

Tests have shown that white lettering on a dark background is slightly more legible than the reverse arrangement. On the other hand dark signs, unless they are of a substantial size, may not be as effective as white signs in attracting attention by daylight. Large guide signs of the expressway type should accordingly have a dark background, either green or black. For smaller Destination, Distance, and Information signs on expressways and elsewhere a white background is preferable, but a green or black background is a permissible alternative.

Wherever white is specified herein as a sign color, it is understood to include silver-colored reflecting coatings or elements that reflect white light.

1A-12 Dimensions

The sign dimensions prescribed in this Manual shall be standard for application on public highways. The size of a sign must depend primarily on the length of its message and the size and spacing of the letters that form the message, or on the size of any required symbol, when the complete legend is designed for adequate legibility. In this respect some flexibility is desirable to permit the use of a uniform sign plate for any particular series of signs.

The standard dimensions shown herein have been designed to provide clear legibility of the signs during the time and throughout the distance necessary for approaching traffic to read and comprehend their messages under "normal" highway conditions. Increases above these standard sizes are desirable where greater

legibility or emphasis is needed, and for expressways special categories of large signs are prescribed. In determining whether the standard size is adequate, consideration should be given to such elements as prevailing speeds and volumes, the width of roadway or number of lanes, the degree of hazard (as appraised by a field survey of sight limitations, intersection complications, etc., or as revealed by accident records), and the competition offered by other signs, lighting, displays, or background. Any doubt should be resolved in favor of a larger sign.

In the enlarging of signs, standard shapes and colors shall be used, and standard proportions shall be retained insofar as practicable. Wherever practical the overall dimensions of the sign plates should be increased in 6-inch increments.

To permit the use of standard dies or templates, the lettering should be of a height measured in whole rather than fractional inches. Since, however, the approved lower-case letters specified for certain signs require initial capitals of a height $1\frac{1}{2}$ times the "loop" height of the lower-case letters, fractional dimensions are standard for some of these initial capitals.

On minor roads and secondary streets signs of smaller than "standard" size may sometimes be justified. Such small signs should not be used except on roads or streets having not more than one lane of moving traffic in each direction and an 85-percentile speed of less than 30 miles per hour.

For expressways, on the other hand, the "standard" size is usually too small, and larger minimum sizes are generally provided for these high-type highways.

1A-13 Symbols

Symbol designs shall in all cases be essentially like those shown in this Manual.⁴ A simple conventional symbol like the curve arrow, the directional arrow, or the intersection diagram is instantly recognized, and, wherever applicable, is to be preferred to a lettered message.

The Joint Committee believes that a wider adoption of symbols in preference to word messages, particularly on warning signs, is a desirable and important step toward the greater safety and facilitation of traffic. This view is strengthened by the general use of symbols in foreign countries, including Canada and the Latin American nations, and the increasing exchange of international travel between this and other countries. The Committee therefore proposes to adopt symbolization wherever practicable for new signs, taking due account of experience here

⁴ Details of symbols are shown in the sign drawings available from the Bureau of Public Roads.

and elsewhere, and recommends that a program of research be undertaken to determine the extent to which symbols may be superior to some of the word messages on signs in current use. During the introductory period for new symbols it may be desirable, for the education of the public, to supplement the symbols with word messages on the same signs or on supplementary plates.

1A-14 Word Messages

Where applicable, standard wordings as shown in this Manual shall be used for sign legends. Most messages, particularly those of regulatory and informational signs, cannot adequately be conveyed by symbols. Word messages should be as brief as possible, and the lettering should be large enough to provide the necessary legibility distance.

Long words or messages, and long geographical names in particular, often present difficulties in the design of signs. Although it is specified that the sizes of sign plates should be determined by the necessary legend to be accommodated, there are sometimes practical limits to sign widths, as for an overhead sign that must extend over a single lane only, or a roadside sign adjacent to a steep cut bank, or an urban sign over a narrow sidewalk.

The narrower standard alphabets (sec. 1A-15) may be used where some condensation in word length is necessary. A further minor saving can be made by a small reduction in the spacing of the letters, but this impairs the legibility and is not recommended. In some instances abbreviations are expedient.

Abbreviations should be kept to a minimum, and should include only those that are commonly recognized and understood, such as Ave., Blvd., N. (for North), RR, or Jct. Two-word place names, where one part is a common geographical designation, like E. Lansing, Rockville Ctr., or Cleveland Hts., can often be acceptably abbreviated, but other abbreviations or contractions, like Gd. Rapids, S. Francisco, N. Brunswick, Newp't News, or Homest'd, are objectionable and should be avoided. Since long names can often be partially recognized by their length, it is sometimes permissible to put them in slightly smaller lettering than would otherwise be required.

1A-15 Lettering⁵

With the exception of destination names on guide signs, sign lettering shall be in clear, open capital letters of the type ap-

⁵ Detailed drawings of the standard capital and lower-case alphabets are supplied to highway departments and sign manufacturers by the Bureau of Public Roads.

proved by the National Joint Committee on Uniform Traffic Control Devices and its sponsoring agencies. Destination names may be in lower-case lettering, with initial capitals.

Interstate.—On the Interstate System it is prescribed that destination names shall be in lower-case lettering, with initial capitals.

In no case should lettering be smaller than that indicated in the illustrations or text herein, and in the sign drawings available from the Bureau of Public Roads.

Use of the very narrow Series A alphabet is no longer acceptable in highway signs. In reflectorized signs other than street-name and parking signs the Series B alphabet should also be avoided because of its limited breadth and stroke width.

As a guide to choice of alphabets, tests have shown that, for any given legend, better legibility can be obtained by using a relatively wide spacing between letters than by using wider or taller letters with a cramped spacing.

1A-16 Illumination and Reflectorization

All signs that are to convey their messages during hours of darkness, other than urban parking signs, shall be reflectorized or illuminated. Much traffic moves after dark, and reflectorization or illumination may be necessary even on signs concerned primarily with daytime activities.

Street parking signs are ordinarily read at slow speeds, are relatively closely spaced, and often receive some illumination from street lighting, hence their reflectorization is optional.

Overhead signs, extending upward from a minimum of 15 feet above the roadway, may not receive enough illumination from motor vehicle headlamps for adequate brightness. **Overhead signs, accordingly, shall be illuminated where an engineering study shows that reflectorization will not give effective performance.**

1A-17 Means of Illumination

Illumination may be by means of:

1. A light behind the sign face, illuminating the main message or symbol, or the sign background, or both, through a translucent material; or
2. An attached or independently mounted light source designed to direct essentially uniform illumination over the entire face of the sign; or
3. Some other effective device, such as luminous tubing shaped to the lettering or symbol, patterns of incandescent light bulbs,

or luminescent panels that will make the sign clearly visible at night.

Ordinary street or highway lighting is not regarded as meeting the requirements for sign illumination.

All illumination shall be such as to show the same sign colors by night and by day. A flashing light incorporated in a sign installation shall be red when displayed with a Stop sign or yellow when displayed with a warning sign or other regulatory sign.

1A-18 Means of Reflectorization

In a reflectorized sign either the legend and border, or the background, or both, may be reflectorized, depending on the sign design and on local conditions. On any particular highway a consistent policy should be followed for signs of the same type, recognizing, however, differences in rural and urban requirements. As a general rule, both the legend and background of urban signs, if other than black, should be reflectorized.

Reflectorization may be by means of:

1. Reflector "buttons" or similar units set into the symbol or message; or
2. Reflecting coatings, either on the sign background or, where a white legend is used on a black or colored background, in the symbol or message and border.

Sign reflecting materials shall reflect white light, or if a reflecting coating is used as the background of a colored sign, the color of the background.

Reflecting material.—An effective reflecting material reflects a large proportion of an incident beam of light directly back toward its source, in a narrow cone having only enough "divergence" to reach the driver's eyes in his normal position above the headlamps. It is this "retrodirective" reflection that distinguishes reflector buttons and reflecting coatings from any sort of specular or diffuse reflectors and gives them their great brilliance.

Reflector buttons.—Reflector buttons in a highway sign are individual reflecting units arranged in rows or patterns to form letters, symbols, or borders. In suitable sizes and spacings they give the visual effect of continuous lines or areas or light. They are made of glass or transparent plastic with lenses or prisms designed for retrodirective reflection.

Reflecting coating.—A reflecting coating is a coating or sheeting applied either to the background or to the legend of a sign, or to both, to give a bright reflection over the entire area so covered. The coating or sheeting is of a retrodirective reflecting

character, usually having minute glass spheres ("beads") closely distributed and embedded in a painted surface or in a flexible plastic sheeting, or minute lenses molded in the surface of a plastic sheeting. Each bead or lens acts as an individual reflecting unit, but the effect is that of a uniformly brilliant area when viewed in the headlamp beam. A suitable incorporation of pigment in a reflecting coating causes it to reflect colored light.

1A-19 Sign Borders

With few exceptions all signs illustrated herein have a narrow border, invariably of the same color as the legend, at or just inside the edge. This improves the appearance of the signs and makes them more conspicuous. A dark border should be set in from the edge, while a white border should extend to the edge of the plate. A suitable border for 30-inch signs having a light background is from one-half to three-quarters of an inch in width, one-half inch from the edge. For similar signs with a white border a width of an inch is appropriate. For other sizes the border widths should be of similar proportions, but not ordinarily to exceed the stroke-width of the major lettering of the sign. On expressway signs exceeding 6 feet by 10 feet in size the border should be approximately 2 inches wide, or, on unusually large signs, 3 inches.

In all sign specifications herein it is understood that where the illustration or text calls for a border, the border is of the same color as the legend, without any repeated statement to that effect.

The corners of the sign border shall be rounded. Where practicable, the corners of the sign panels should also be rounded to fit the border. Rounding the corners improves the appearance of the signs, and for signs mounted at a height of less than 7 feet is an important safety measure.

A suitable corner radius for sign plates up to 30 inches in their greater dimension is $1\frac{1}{2}$ to 2 inches, with similar proportions for larger sizes. On large expressway guide signs the corners should be rounded on a radius of approximately $\frac{1}{8}$ of the lesser side dimension, but not to exceed 12 inches. On such large signs the corner areas outside the rounded border need not be trimmed.

1A-20 Standardization of Position

Standardization of position cannot always be attained in practice, because signs must in all cases be placed in the most advantageous positions and must be accommodated to highway design and alinement. The general rule is to locate signs on the right-hand side of the roadway, where the driver is in the

habit of looking for them. On wide expressways, or where some degree of lane-use control is desirable, or where space is not available at the roadside, overhead signs are often necessary. Signs in any other locations should ordinarily be considered only as supplementary to signs in the normal locations. Under some circumstances signs may advantageously be placed on channelizing islands or (as on sharp curves to the right) on the left-hand shoulder of the road, directly in front of approaching vehicles. A supplementary sign located on the left of the roadway is often helpful on a three- or four-lane road, or on a one-way roadway, where traffic in the right-hand lane interferes with the driver's view to the right.

Normally signs should be individually erected on separate posts or mountings, except where one sign supplements another, or where route or directional signs must be grouped. In rural areas two signs for different purposes should not be located closer together than 200 feet along the highway, though exceptions to this rule are sometimes necessary at intersections. Signs near together are difficult to read, especially at high speed.

Standard positions for a number of typical signs are illustrated in figures 1-1 to 1-3.

1A-21 Warrants for Overhead Signs

Overhead signs are generally justified only (1) where the message is applicable to a particular lane, or to particular lanes, over which the sign is placed, or (2) where traffic or roadway conditions are such that an overhead mounting is necessary for adequate visibility. Their principal applications, therefore, are on wide and heavily traveled highways, and particularly expressways.

Overhead signs are warranted:

1. Where control of traffic with reference to lane use can be made significantly more effective.
2. At or just in advance of a divergence from a heavily traveled roadway.
3. Where, as on a depressed or elevated urban expressway, there is no space for signs at the side of the roadway.
4. On roadways of more than two lanes in one direction, where heavy traffic will interfere with the visibility of roadside signs.
5. Where there is a relatively large volume of nonlocal traffic unfamiliar with the highway and needing particularly effective guidance.
6. Where interchanges on an expressway are spaced at less than 1 mile.

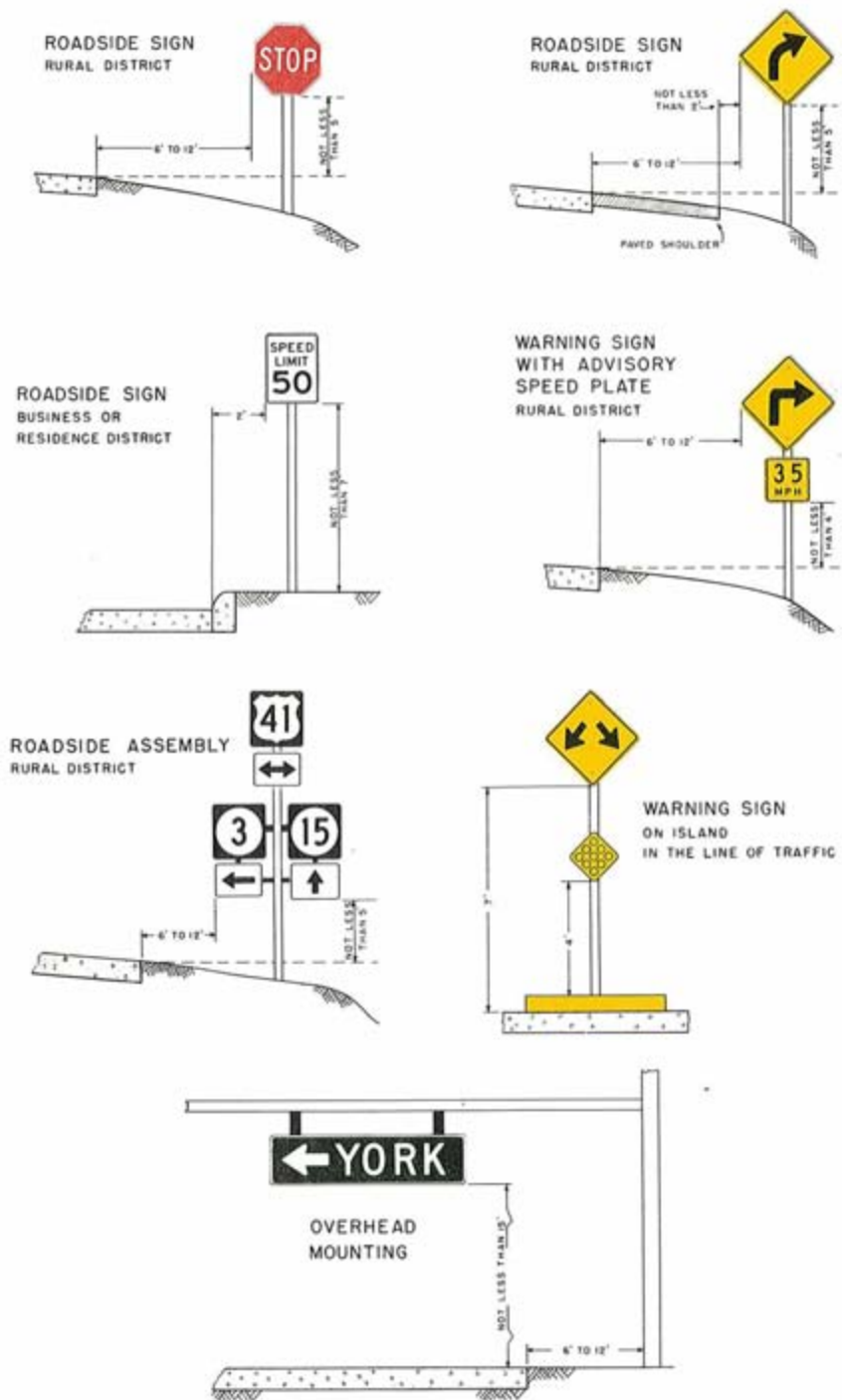


Figure 1-1. Height and lateral location of signs—typical installations.

7. Where roadside development, as, for example, a brightly lighted area, seriously detracts from the effectiveness of roadside signs.

8. Where vertical or horizontal curvature of the roadway is such as to limit the long-range visibility of a roadside sign. In this situation consideration should first be given to relocating the roadside sign for better visibility.

9. Where on an expressway there is a nonsignalized pedestrian crosswalk.

10. For consistency, where other signs on a given stretch of highway are overhead.

Interstate.—On the Interstate System it is prescribed that certain interchange Guide signs shall be placed overhead (sec. 1D-36).

1A-22 Height

Signs erected at the side of the road in rural districts shall be mounted at a height of at least 5 feet above the level of the roadway edge, measured to the bottom of the sign. On expressways this height shall be at least 6 feet. In business and residence districts, and in any case where parking is likely to occur or where there are other obstructions to view, the height shall be at least 7 feet. The height to the bottom of a secondary sign mounted below another sign may be 1 foot less than the appropriate height specified above, and for a secondary sign below a large expressway directional sign the height may be as low as 4 feet to avoid excessive height for the top of the major sign. A high clearance above the ground is often advantageous, but may reduce the effectiveness of reflectorization.

A route marking assembly consisting of a Route Marker with an auxiliary plate (sec. 1D-9) is treated as a single sign for the purposes of this section.

Interstate.—Standards for the Interstate System prescribe a minimum height of 7 feet for roadside directional signs, or, if a secondary sign is mounted below another sign, 8 feet for the major sign and 4 feet for the secondary sign. Route markers and warning and regulatory signs shall be at a minimum height of 6 feet.

The clear height of overhead signs and sign structures shall be not less than 15 feet over the entire roadway width, including the usable width of shoulders.

Interstate.—On the Interstate System it is prescribed that overhead signs shall have a vertical clearance of at least 17 feet over the roadway.

1A-23 Lateral Clearance

Roadside signs shall be placed at the edge of the road shoulder with the nearest edge of the sign not less than 6 feet nor more than 12 feet from the edge of the pavement or traveled way, except where conditions do not permit or where other requirements are specified elsewhere in this Manual with respect to particular signs. Where a raised curb, guardrail, or paved shoulder is present a sign should ordinarily be placed with its nearest edge at least 2 feet outside such curb line, guardrail, or paved shoulder.

In urban areas a clearance of 1 foot from the curb line is permissible where sidewalk width is limited or existing poles are close to the curb.

Expressway signs, other than overhead signs, shall be erected at a minimum distance of 2 feet outside the usable roadway shoulder, to the right or left side of the roadway, or a minimum of 2 feet outside any unmountable curbing present. Where practicable, a sign should be not less than 10 feet from the edge of the nearest traffic lane. Lesser clearances, but not generally less than 6 feet, may be used on connecting roadways or ramps at interchanges.

Interstate.—Standards for the Interstate System require that clearances shall be 2 feet beyond the edge of the roadway shoulder or beyond the face of an unmountable curb.

The above standards for minimum lateral clearance shall apply also to structures for the support of overhead signs. Where an expressway median is 12 feet or less in width, consideration should be given to spanning both roadways without a center support. If an overhead sign support is to be placed in a curbed island or gore, a clearance of at least 2 feet from the curb face should be provided.

For overhead sign supports, guardrails suitable for the protection of motorists should be installed approximately at the outer edge of the shoulder. Similar protection may be necessary at some installations of roadside signs.

Interstate.—Standards for the Interstate System make guardrail protection for overhead sign structures mandatory.

1A-24 Location of Signs

A warning sign is generally placed in advance of the condition to which it calls attention (figs. 1-4, 5). A regulatory sign, as a rule, is placed where its mandate or prohibition applies. A Stop sign, for example, is erected as near as practicable to the

point where the stop is to be made. Parking signs mark the limits of the restricted zones. Some regulatory signs are repeated at intervals along a continuous stretch of highway to which a restriction applies. Guide signs are placed at and in advance of intersections and interchanges, and between such points of decision, in such a manner as to keep the driver well informed as to the route to his destination. Figures 1-6 to 1-8 show the placement of intersection guide signs on other than expressways. Detailed specifications for sign locations are given in the sections of this Manual dealing with individual signs or classes of signs.

1A-25 Erection

All signs shall be mounted approximately at right angles to the direction of, and facing, the traffic that they are intended to serve.

Where mirror reflection from the sign face is encountered in such degree as to reduce legibility, the sign should be turned slightly away from the road. At curved alignments the angle of placement should be determined by the course of approaching traffic rather than by the roadway edge at the point where the sign is located. Sign faces are normally vertical, but on grades it may be desirable to tilt a sign forward or back from the vertical to improve the viewing angle.

1A-26 Posts and Mountings

Sign posts and their foundations shall be so constructed as to hold signs rigidly in a proper and permanent position, to resist swaying in the wind or displacement by children or vandals. Signs wider than 48 inches or larger than 10 square feet in area may advantageously be mounted on two posts. Large expressway guide signs and overhead signs require substantial structures, designed to withstand the heavy stresses of wind and load.

Each State and local highway authority should adopt for sign posts the material and design dictated by local resources and past experience as the most satisfactory and economical. Most of the standard sign plates have a bolt-hole spacing that will permit their mounting on posts having holes spaced on 3-inch centers. Commercially available metal posts are commonly punched with holes on 1-inch centers, to fit any plate. Wooden posts can be drilled in the field as required.

In some cases, especially in urban districts, signs can be correctly placed on existing supports used for other purposes, such as traffic signal standards, street lamps, or public utility poles, thereby saving expense and minimizing sidewalk obstruction.

Correct location of the sign should not thus be sacrificed, however. Utility poles should be used only with the permission of the controlling company.

A portable or removable type of mounting is desirable for signs used temporarily or intermittently. Such a mounting should have sufficient stability to resist overturn in strong winds.

1A-27 Sign Materials

A variety of materials can be used effectively for permanent signs, and the choice among them will depend largely on local experience and the local availability of satisfactory materials. Most of the highway departments of the States and larger cities have suitable specifications that can be obtained by smaller communities having limited facilities for the designing of signs.

It is recognized that technological progress may develop new and satisfactory or superior materials for highway signs, particularly in the fields of illumination and reflectorization. Nothing in this Manual should be interpreted to exclude any new material that meets the standard requirements for color and visibility.

1A-28 Maintenance

All traffic signs shall be kept in proper position, clean, and legible at all times. Damaged signs shall be replaced immediately.

Signs poorly maintained lose their authority as traffic control devices. Damaged, defaced, or dirty signs are ineffective and discredit the agency responsible for them.

To insure adequate maintenance a suitable schedule for inspection, cleaning, and replacement of signs should be established. All signs should be inspected at least twice a year and any that are defective should be cleaned, touched up, or replaced and taken in for repair and refinishing or scrapping. Employees of the highway department, traffic police, and other governmental employees whose duties require that they travel on the highways should be instructed to report any damaged or obscured sign at once.

Special care should be taken to see that weeds, shrubbery, construction materials, and snow are not allowed to obscure the face of any sign.

In the case of illuminated signs a regular schedule for replacement of lighting elements should be maintained, so that such elements will be renewed before they would normally be expected to burn out.

As a useful guide to sign maintenance the American Associa-

tion of State Highway Officials' *Policy on Maintenance of Safety and Traffic Control Devices* is recommended.⁶

1A-29 Reflector Markers

Small reflecting units at the roadside are widely used to mark culverts and other hazards, or, in series, to indicate the alinement of the road. In the latter application they are known as delineators. Although like signs they are usually mounted on posts and convey a warning to the driver, they are more closely related to obstruction markings or to guide lines. They are accordingly treated in this Manual as markings (secs. 2D-1 to 2D-5).

B-REGULATORY SIGNS

Section 1B-1 Application of Regulatory Signs

Regulatory signs shall be used to inform highway users of traffic laws or regulations that apply at given places or on given highways, disregard of which is punishable as an infraction, violation, or misdemeanor. They are essential to indicate the applicability of legal requirements that would not otherwise be apparent. Great care must be exercised to see that they are erected wherever needed to fulfill this purpose, but unnecessary mandates should be avoided.

Included among regulatory signs are some, like those marking the end of a restricted zone, that are related to operational controls, though not in themselves imposing any obligations or prohibitions.

Regulatory signs shall normally be erected at those locations where the regulations apply, and shall be mounted so as to be easily visible and legible to the motorist whose actions they are to govern. The message on the sign shall clearly indicate the requirements imposed by the regulation. Signs that have been erected but are no longer applicable shall be removed. Regulatory signs cannot be expected to command respect and obedience unless the regulations therein set forth are adequately enforced.

Although regulations may differ widely from one location to another, depending on traffic requirements, highway conditions, and local legislation, it is possible to establish uniform standards of application, location, size, shape, colors, and dimensions for different types of regulatory signs, so that the motorist can always recognize them quickly.

Regulatory signs on expressways must ordinarily be larger

⁶ *Policy on Maintenance of Safety and Traffic Control Devices and Related Traffic Services*, \$1.50, available from the American Association of State Highway Officials, 917 National Press Bldg., Washington 4, D.C.

than on other highways, for quicker recognition. Otherwise standard shapes, colors, and legends are used, where applicable. A few special messages are required to deal with particular features of expressway design. Such regulations as are necessarily imposed must be clearly posted to prevent improper or unexpected behavior in fast or high-volume traffic. With an increasing mileage of expressways in use, drivers can be expected to become familiar with expressway traffic controls, and regulatory signs should be used only where there is an apparent need for them.

1B-2 Classification of Regulatory Signs

Regulatory signs are classified in the following groups:

1. Right-of-way series:
 - (a) Stop sign (secs. 1B-4 to 6, 9).
 - (b) Yield sign (secs. 1B-7 to 9).
2. Speed series (secs. 1B-10 to 15).
3. Movement series:
 - (a) Turning (secs. 1B-16 to 20).
 - (b) Alinement (secs. 1B-21 to 25).
 - (c) Exclusion (secs. 1B-26, 27).
 - (d) One way (secs. 1B-28 to 30).
4. Parking series (secs. 1B-31 to 33).
5. Pedestrian series (secs. 1B-34 to 36).
6. Miscellaneous series (secs. 1B-37 to 41).

1B-3 Design of Regulatory Signs

With few exceptions, hereinafter detailed in the specifications for individual signs, regulatory signs are rectangular in shape, with the larger dimension vertical, and have black legend on a white background. For signs 30 inches by 36 inches in size, or larger, white legend on a black background is a permissible alternate. The principal exceptions referred to are the Stop sign, the Yield sign, the horizontal One Way sign, and street parking signs.

Interstate.—On the Interstate System, the black background for regulatory signs is not permitted, regardless of size.

Standard dimensions are given for each regulatory sign specified herein. On minor roads and secondary streets (having not more than one moving lane of traffic in each direction and an 85-percentile speed of less than 30 miles per hour) a smaller design is warranted for some of the signs, as indicated in the individual specifications. On the other hand, where conditions require greater visibility and legibility than can be provided by

the standard sign, larger signs should be used. On expressways a special class of large signs is called for.

All regulatory signs, unless definitely excepted in the specifications herein covering a particular sign or group of signs, shall be reflectorized or illuminated (secs. 1A-17, 18).

1B-4 Stop Sign (R1-1)

It is commonly provided by law that State and local authorities, with reference to highways under their respective jurisdictions, may designate through highways and erect Stop signs at specified entrances thereto, or may designate any intersection as a stop intersection and erect like signs at one or more entrances to such intersection, or at any location necessary to control traffic within an intersection. A suitable model for Stop sign legislation is to be found in the Uniform Vehicle Code (secs. 11-403, 11-705, and 15-108).



R1-1
30" x 30"

The Stop sign shall be octagonal in shape, shall have a red background, and shall carry the word **STOP** in white letters at least one-third the height of the sign. It shall have a standard size of 30 inches by 30 inches. On minor roads and secondary streets (sec. 1B-3) a sign 24 inches by 24 inches in size may be used.

A flashing red beacon, in operation both by day and by night, may be used in conjunction with a Stop sign. It should generally be mounted just above the sign.

Secondary messages shall not be used on Stop signs.

1B-5 Warrants for Stop Sign

Only general policy statements can be proposed for Stop sign warrants at this time. Conditions warranting Stop signs are:

1. Intersection of a less important road with a main road where application of the normal right-of-way rule is unduly hazardous.
2. Intersection of a county road, city street, or township road with a State road.
3. Intersection of two main highways where no traffic signal is present.

4. Street entering a through highway or street.
5. Unsignalized intersection in a signalized area.
6. Railroad crossing where a stop is required by law or by order of the appropriate public authority.
7. Other intersection where a combination of high speed, restricted view, and serious accident record indicates a need for control by the Stop sign.

Stop signs will never be used on the through roadways of expressways. Expressway interchanges, moreover, should be designed for continuously flowing traffic, making Stop signs generally unnecessary and unwarranted even on the entering roadways. Where for strictly local traffic in sparsely populated areas grade intersections may temporarily be justified, Stop signs must be used on the entering roadways to protect the through traffic. Stop signs may also be required at the far end of diverging roadways where they intersect other highways not designed as expressways. In most such cases the speeds will not be such as to require any great increase in sign sizes.

Stop signs should not be erected at intersections where traffic control signals are present. The conflicting commands of two types of control devices are confusing. If traffic is required to stop when the operation of stop-and-go signals is not warranted, the signals should be put on flashing operation with the red flashing light facing the traffic that must stop.

Where two main highways intersect, the Stop sign or signs should normally be posted on the lesser street to stop the lesser flow of traffic. Authoritative traffic engineering studies, however, may justify a decision to install a Stop sign or signs on the major street, as at a three-way intersection where safety considerations may justify stopping the greater flow of traffic to permit a left-turning movement.

Many of the conditions covered by the Stop sign warrants above can be dealt with by Yield signs with less inconvenience to the public. Use of the Yield sign should be considered where sight distances are adequate and where a full stop at all times is not necessary for safety.

1B-6 Four-Way Stop Signs

The "Four-Way Stop" installation, where legal, has been found useful as a safety measure at some locations. It should not ordinarily be used where the volume of traffic on the intersecting roads is very unequal. Where there is a heavy volume of traffic a traffic control signal installation is more satisfactory.

Any of the following conditions may warrant a four-way Stop sign installation:

1. Where traffic signals are warranted and urgently needed, the four-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the signal installation.

2. An accident problem, as indicated by five or more reported accidents of a type susceptible of correction by a four-way stop installation in a 12-month period. Such accidents include right- and left-turn collisions as well as right-angle collisions.

3. Minimum traffic volumes:

(a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average day, and

(b) The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, but

(c) When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum vehicular volume warrant is 70 percent of the above requirements.

At a four-way stop intersection each Stop sign may be supplemented by a separate plate mounted just below it, reading 4-WAY, in black letters on a white background. The standard size for such plate should be 12 inches by 6 inches.



R1-2
36" x 36" x 36"

1B-7 Yield Sign (R1-2)

The YIELD sign shall be an equilateral triangle with one point downward, having a black legend on a yellow background. The sides of the triangle shall have a standard, and minimum, length of 36 inches, giving the sign a nominal height of approximately 30 inches after rounding of the corners. On an expressway the sides shall be at least 48 inches. The Yield sign shall be located and erected in the same manner as the Stop sign.

The Yield sign requires a stop only when necessary to yield

right-of-way to crossing traffic. Suitable legislation should be adopted to define its meaning and to authorize its use. It should not be regarded as a substitute for the Stop sign where a Stop sign is warranted. A suitable model for Yield sign legislation is to be found in the Uniform Vehicle Code (secs. 11-403, 11-705, and 15-108).

1B-8 Warrants for Yield Sign

Generally the Yield sign serves a purpose similar to that of the Stop sign, in that it assigns right-of-way to traffic on certain approaches to an intersection. Since it does not require all vehicles to stop, it should not be used where visibility limitations or prevailing high speeds or volumes of traffic make a full stop necessary for safety.

The Yield sign is warranted:

1. On a minor road at the entrance to an intersection where it is necessary to assign right-of-way to the major road, but where a stop is not necessary at all times, and where the safe approach speed on the minor road exceeds 10 miles per hour.

2. On the entrance ramp to an expressway where an acceleration lane is not provided.

3. Within an intersection with a divided highway, where a Stop sign is present at the entrance to the first roadway and further control is necessary at the entrance to the second roadway, and where the median width between the two roadways exceeds 30 feet.

4. Where there is a separate or channelized right-turn lane, without an adequate acceleration lane.

5. At any intersection where a special problem exists and where an engineering study indicates the problem to be susceptible to correction by use of the Yield sign.

Yield signs should not ordinarily be placed against the major flow of traffic at an intersection. They should never be erected on the approaches of more than one of the intersecting streets or highways. Nor should they be used at any intersection where there are Stop signs on one or more approaches, except, under special circumstances, to provide minor movement control within complex intersections.

Yield signs will never be used on the through roadways of expressways. On an entering roadway without an adequate acceleration lane a Yield sign may properly be used, but in a well designed interchange the sign will interfere with the free merging movement, and its use under such circumstances is not approved.

Interstate.—On the Interstate System the Yield sign may be used on entrance roadways where conducive to safe and orderly merging movement, but not ordinarily where full-length acceleration lanes exist.

1B-9 Location of Stop Sign and Yield Sign

A Stop sign shall always be erected at the point where the vehicle is to stop or as near thereto as possible, and may be supplemented with a Stop line and with the word STOP on the pavement, as shown in figure 1-2. A Yield sign shall be erected in the same manner, at the point where the vehicle is to stop if necessary to yield the right-of-way. In no case shall either sign be placed farther than 50 feet from the intersected roadway. Where there is a marked crosswalk on the pavement the sign shall be erected 4 feet in advance of the crosswalk line nearest to approaching traffic.

Height and lateral placement of the sign shall be in accord with the general standards set forth in secs. 1A-22, 23.

Where only one sign is used it shall be on the right-hand side of the roadway. At an intersection where a wide throat exists on the signed approach, observance of the sign may be improved by the erection of an additional sign on the left side of the approach road, and by the use of a Stop line. At certain channelized intersections the sign may be effectively placed on a channelizing island.

In the event the visibility of a Stop sign or a Yield sign at any location is restricted, the sign shall be located as specified, and a Stop Ahead sign (sec. 1C-14) or a Yield Ahead sign (sec. 1C-15) shall be erected in advance of the Stop or Yield sign.

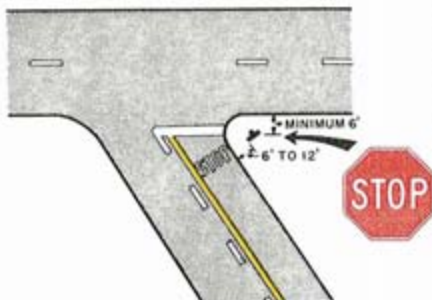
Figures 1-2, 1-6, 1-7, and 1-8 show typical Stop and Yield sign installations.

1B-10 Speed Limit Sign (R2-1)

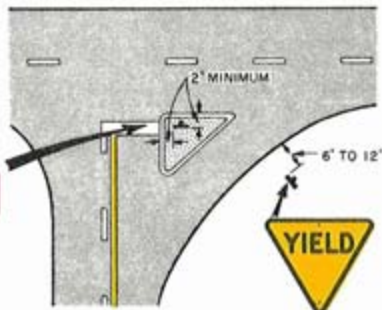
The standard Speed Limit sign shall be 24 inches by 30 inches in size, with a minimum size for minor roadways (sec. 1B-3) of 18 inches by 24 inches. On expressways the sign should be at least 36 inches by 48 inches.

Interstate.—For the Interstate System a size of 48 inches by 60 inches is prescribed for this sign.

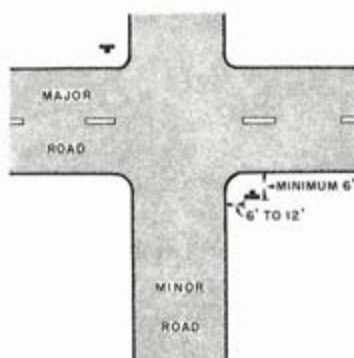
The numerical speed limit displayed on this sign shall be the limit established by law, or by regulation after an appropriate engineering and traffic investigation according to law. The speed limits shown should be in multiples of 5 miles. A suitable model for speed-limit legislation is to be found in the Uniform Vehicle Code (secs. 11-801 to 806).



ACUTE ANGLE INTERSECTION



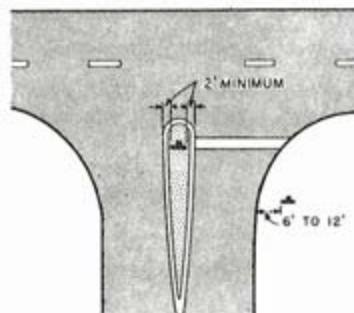
CHANNELIZED INTERSECTION



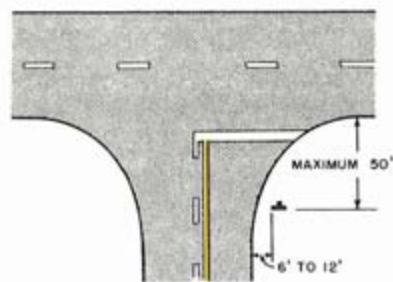
MINOR CROSSROAD



URBAN INTERSECTION



DIVISIONAL ISLAND



WIDE THROAT INTERSECTION

Figure 1-2. Typical locations for Stop signs and Yield signs. In the lower diagrams either sign may be appropriate.

Where a special speed limit applies to trucks or other vehicles the legend TRUCKS 40, or such similar message as is appropriate, should be shown below the standard message, on a separate plate (R2-2) or on an elongation of the standard plate.

Interstate.—Standards for the Interstate System prescribe an advisory exit speed sign with the legend EXIT 30 M.P.H. (or other appropriate limit), 48 inches by 60 inches in size, to be erected where necessary on the right-hand side of the exit ramp, just beyond the gore. This sign, having black legend on a yellow background, is to be regarded as advisory only, though, for convenience, it is here cited in connection with official regulatory speed signs.



R2-1
24" x 30"



R2-2
24" x 24"



R2-3
24" x 24"

1B-11 Night Speed Sign (R2-3)

A special problem in speed signing is encountered in States where different day and night speed limits are prescribed. Although posting both speeds destroys the effective simplicity of the standard speed sign, it is necessary that the night limit be shown as well as the day limit. This can be done in either of two ways:

1. By erecting immediately below the standard Speed Limit sign (R2-1), or combining with it, a Night Speed sign (R2-3) carrying the legend NIGHT 45 (or other suitable numerical limit). In this case the numerals in the Night Speed sign and only the words SPEED LIMIT in the standard sign, should be reflectorized. As a special but logical exception to the general color scheme, the Night Speed sign should have its legend in white upon a black background.

2. By superimposing the night speed, in reflectorized numerals, over the daytime speed, in unreflectorized numerals, so that it becomes legible only in the beam of motor-vehicle headlamps at night.

1B-12 Minimum Speed Sign (R2-4)

Where an engineering and traffic investigation shows that slow speeds on a highway consistently impede the normal and reasonable movement of traffic, it is sometimes desirable to impose a minimum speed limit, below which it is illegal to drive except when necessary for safe operation or in compliance with law. In such case the Minimum Speed sign may be used. **It shall be of the same standard size and shall be posted in the same manner as standard Speed Limit signs.** A suitable model for minimum speed legislation is to be found in the Uniform Vehicle Code (sec. 11-804).



R2-4
24" x 30"

1B-13 Location of Speed Limit Sign

Speed Limit signs indicating legal speed limits shall, when used, be located at the points of change from one speed limit to another and at additional locations, as just beyond major intersections, where it is necessary to remind motorists of the limit that is applicable.

In rural districts on Interstate, U.S., and other State numbered routes, Speed Limit signs indicating the statutory speed limits shall be erected at the entrance to the State and at boundaries of metropolitan areas. A special oversize sign is often desirable at State boundaries.

Signs indicating altered or "zone" speed limits shall not be erected until the altered speed limits are approved and officially authorized. In such cases a Speed Limit sign shall be located at the beginning of each section where the speed is altered, and at appropriate intermediate locations. At the end of such a section there shall be erected a Speed Limit sign showing the next speed limit, or, in case there is no specified speed limit in the area about to be entered, an End (35) Mile Speed sign or an End Speed Zone sign (sec. 1B-15).

Speed Limit signs shall be erected in accordance with the general requirements for sign placement (secs. 1A-22, 23).

1B-14 Speed Zone Ahead Sign (R2-5)

The SPEED ZONE AHEAD sign in rural areas, if used, shall be placed not less than 300 nor more than 1,000 feet in advance of the speed zone to which it applies. The sign will not ordinarily be needed in urban areas where speeds are relatively low.

This sign shall always be followed by the regular Speed Limit sign erected at the beginning of the zone where the altered speed limit applies.

The Speed Zone Ahead sign shall be of the same size as the Speed Limit sign at the beginning of the speed zone, and shall be erected in the same manner.



R2-5
24" x 30"



R2-6
24" x 30"

1B-15 End (35) Mile Speed Sign (R2-6)

The END (35) MILE SPEED sign may be displayed at the end of an authorized speed zone to inform motorists that they are leaving a section where the statutory speed limits have been altered. If used it shall be of the same size as the Speed Limit sign (sec. 1B-10) at the beginning of the zone, and shall be erected in the same manner (sec. 1B-13). As an alternate, the legend END SPEED ZONE (R2-7) may be used.

Posting the speed limit for the following section of highway with a regular Speed Limit sign (sec. 1B-10) eliminates the need for either of the end-of-zone signs. At least one of these three signs should be used, however.

1B-16 Turn Prohibition Signs (R3-1 to 4, inclusive)

The standard, and minimum, size of the NO RIGHT TURN sign (R3-1) and the NO LEFT TURN sign (R3-2) shall be 24 inches by 30 inches; that of the NO TURNS sign (R3-3) shall be 24 inches by 24 inches. The standard size of the NO U TURN sign (R3-4) is 24 inches by 30 inches; however, a smaller size is permitted (sec. 1B-17).

Turn Prohibition signs should be placed where they will be most easily seen by drivers intending to turn. The No Right Turn sign shall be placed at the near right-hand corner of the intersection. Where No Left Turn or No Turns signs are re-

quired, two shall be used, one at the near right-hand corner and one at the far left-hand corner, facing traffic approaching the intersection. Where there is a traffic signal on the far right corner, the sign on the right-hand side shall be placed near that signal.



R3-1
24" x 30"



R3-3
24" x 24"



R3-4
24" x 30"

These are minimum requirements, and additional signs should be placed as necessary at or in advance of the intersection. Overhead signs are sometimes desirable, particularly in congested areas. Signs may be mounted just above, below, or alongside traffic signal faces governing the traffic to which they apply. If advance signs are used, care should be taken that no alley or public driveway exists between them and the intersection where the turning movement is prohibited. At an intersection with a one-way street, whether signalized or not, the One Way sign (sec. 1B-28) should be used, and may be supplemented by the Turn Prohibition sign (fig. 1-3). A Turn Prohibition sign is not needed at a ramp entrance to an expressway where the design is such as to indicate clearly the one-way traffic movement on the ramp.

A Turn Prohibition sign mounted on a traffic signal installed directly over any roadway shall have a clearance of at least 15 feet above the roadway.

When the movement restriction applies during certain periods only, the use of Turn Prohibition signs calls for special treatment. The following alternatives are listed in order of preference:

1. Internally illuminated signs that are lighted and made legible only during the restricted hours, particularly desirable at signalized intersections.

2. Permanently mounted signs incorporating a supplementary legend showing the hours during which the prohibition is applicable.

3. Movable signs at each corner of the intersection where required, put in place under police supervision only when applicable and removed at other hours.

1B-17 U-Turn Prohibition Sign (R3-4)

The NO U TURN sign may be used at or between intersections to indicate regulations prohibiting U turns at or on the specific intersections or roadways so posted. It shall have a standard size of 24 inches by 30 inches, and a small size of 18 inches by 24 inches for secondary city streets.

This sign may be used also on expressways where a crossover between roadways has been provided for official or emergency use only. It should be erected to the left of the roadway immediately in advance of the crossover. On expressways the sign should be at least 36 inches by 48 inches in size.

Interstate.—On the Interstate System it is prescribed that this sign shall be 36 inches by 48 inches in size, that it shall be used only when required by State law, and that it shall be placed parallel to the highway. Where the sign is not used a double yellow delineator-type reflector marker (sec. 2D-4) shall be placed at the left of the roadway, on the far side of the crossover.

1B-18 Lane-Use Control Signs (R3-5 to 8, inclusive)

Lane-Use Control signs shall be used to indicate the types of movement that are permitted or required from specific lanes at an intersection. The standard, and minimum, sizes of these signs shall be 30 inches by 36 inches for the overhead signs and 30 inches by 30 inches for the post-mounted signs. The signs for overhead mounting (R3-5 and R3-6) shall be mounted over the



R3-5
30" x 36"



R3-6
30" x 36"

lanes to which they apply. The mandatory movement sign (R3-5) shall show a single arrow and the regulatory word message ONLY. The optional movement sign (R3-6) shall show a straight-through and a curved arrow with the lower ends of their shafts superimposed, to indicate that either of the movements symbolized is permissible.

The mandatory turn sign (R3-7) designed for post mounting shall carry the message **RIGHT (or LEFT) LANE MUST TURN RIGHT (or LEFT)**.



R3-7
30" x 30"



R3-8
30" x 30"

Double-turn signs for post mounting may be needed at such locations as at the right curb (for double right turns) or on the left side of a one-way street or on the median of a divided highway (for double left turns). The post-mounted double-turn signs (R3-8) should carry, side by side, on the same plate, two arrow symbols similar to the designs for the overhead signs.

1B-19 Warrants for Lane-Use Control Signs

Lane-Use Control signs at intersections shall be used whenever it is desired to require vehicles in certain lanes to turn, or to permit turns from an adjacent lane.

The Uniform Vehicle Code (sec. 11-601) authorizes such changes from normal turning regulations.

Lane-use controls permitting left (or right) turns from two (or more) lanes are normally warranted whenever the turning volume exceeds the capacity of one turning lane, and when all movements can be accommodated in the lanes available to them.

When multiple-lane left turns are to be permitted at signalized intersections, special signal phasing should be used to allow the turning movements without interference from opposing or cross traffic.

1B-20 Location of Lane-Use Control Signs

Overhead Lane-Use Control signs are preferred because they can be placed over the lanes to which they apply. This type of control, and particularly the multiple-lane turn, occurs where volumes are high and an overhead installation can be justified.

When post-mounted Lane-Use Control signs are used, one sign should be placed at the intersection. A second Lane-Use Control sign should be placed at an adequate distance in advance of the intersection so that motorists can select the appropriate lane before reaching the ends of the lines of waiting vehicles. Sup-

plementary pavement markings (sec. 2B-26) should be used with post-mounted signs.

Post-mounted signs shall be sufficiently high (at least 8 feet above the pavement surface) to make them visible to motorists traveling in lanes other than the median or curb lane.

1B-21 Do Not Pass Sign (R4-1)

The DO NOT PASS sign may be used on a two- or three-lane road at the beginning of, and at intervals within, a zone through which restricted sight distance or other condition makes overtaking and passing hazardous. The sign is normally used in addition to standard pavement markings (sec. 2B-8) to emphasize the restriction on passing. Where pavement markings are present the sign need not be used.

The standard Do Not Pass sign shall be 24 inches by 30 inches in size, with a minimum size for minor roads of 18 inches by 24 inches. It shall be erected in accordance with the general specifications for sign placement (secs. 1A-22, 23).

Because a driver about to pass a vehicle ahead often has only a restricted view to the right, an additional sign on the left-hand side of the roadway may be desirable.

Standards for determining the location and extent of no-passing zones are set forth in connection with pavement markings through such zones (secs. 2B-9, 10).

No-passing zones are not required on expressways with divided roadways.



R4-1
24" x 30"



R4-2
24" x 30"

1B-22 Pass With Care Sign (R4-2)

The PASS WITH CARE sign shall be used at the end of a no-passing zone where a Do Not Pass sign has been erected at the beginning of the zone. It shall be of the same size, and shall be erected in the same manner as the Do Not Pass sign.

1B-23 Slower Traffic Keep Right Sign (R4-3)

The SLOWER TRAFFIC KEEP RIGHT sign shall have a standard, and minimum, size of 24 inches by 30 inches. Because it will not be used on secondary roads, no small design is provided for. On expressways the sign should be at least 36 inches by 48 inches in size.

The sign shall be erected in accordance with the general requirements for sign placement (secs. 1A-22, 23).

The Slower Traffic Keep Right sign may be used on multiple-lane roadways where it is desirable to keep traffic from unnecessary weaving. It should be erected just beyond the beginning of a multiple-lane pavement, and at other locations where there is a tendency on the part of the motorist to drive in the left-hand lane (or lanes) below the normal speed of traffic. It should not be used on the approach to an interchange.

An alternative legend for this sign, KEEP RIGHT EXCEPT TO PASS, (R4-4) may be used where State law requires vehicles to keep in the right-hand lane at all times except when overtaking and passing. Because freeway traffic can move more effectively if vehicles are not required to weave from side to side unnecessarily, the SLOWER TRAFFIC KEEP RIGHT is preferable where it can legally be used.

Interstate.—Standards for the Interstate System prescribe use of the Keep Right Except to Pass sign, with the Slower Traffic Keep Right sign as a permitted alternate to it. In either case, the sign is 48 inches by 60 inches in size.



R4-3
24" x 30"



R4-5
24" x 30"



R4-6
24" x 30"

1B-24 Signs for Uphill Traffic Lanes (R4-5, R4-6)

Where an extra lane has been provided on an upgrade for slow-moving traffic, it shall be preceded by a sign directing such traffic into this "climbing" lane. The Slower Traffic Keep Right sign (sec. 1B-23) is applicable to this purpose, or more specific messages such as TRUCKS USE RIGHT LANE (R4-5) may be used. The standard, and minimum, size of these signs shall be 24 inches by 30 inches.

In advance of the beginning of the climbing lane a sign, TRUCK LANE (500) FEET (R4-6), may be erected, of the same size as the sign at the beginning of the climbing lane. The distance shown should approximate that of the actual location of the sign.

In advance of the end of the climbing lane, a Pavement Width Transition warning sign shall be erected (sec. 1C-18). This is particularly important, as the end of the climbing lane will normally be concealed beyond the crest of the grade. A duplicate sign on the left of the roadway is also desirable to warn the faster traffic, as the sign on the right may be obscured by the slower moving trucks.

Pavement markings should clearly indicate that the climbing lane is an additional lane in one direction, and that the section is not to be used as a three-lane road (sec. 2B-15).

1B-25 Keep Right Sign (R4-7)

The KEEP RIGHT sign shall have a standard size of 24 inches by 30 inches, and a small size of 18 inches by 24 inches for minor roads and secondary streets. On expressways the sign should be at least 36 inches by 48 inches.



R4-7
24" x 30"

The arrow is normally horizontal, but where traffic is not required to turn sharply an arrow pointed upward at an angle of about 30 degrees (R4-8) may convey its message more clearly.

The Keep Right sign shall be used within and at the ends of medians, parkways, loading islands, and refuge islands, at traffic islands, and at underpass piers, where traffic is required to keep to the right of such obstructions.

Where the obstruction is in or so near the line of traffic that the sign at a normal minimum height may be obscured by vehicles, a second sign of the same design may be mounted directly above the standard sign with its bottom edge at a height of 8 to 10 feet above the pavement. In this case the lower sign may be placed somewhat below the normal minimum height.

On a median the Keep Right sign should be mounted not more

than 50 feet beyond the approach end of the island. On a pedestrian island or intersection channelizing island it should be mounted at the approach end or as close thereto as practicable. The sign should be mounted on the face of or just in front of a pier or other obstruction in the center of the roadway, in which case the standard stripe markings on the obstruction (sec. 2C-2) should be discontinued to leave a 3-inch space around the outside of the sign, as shown in figure 2-19.

Where traffic is permitted to pass to either side of an island or other obstruction in the roadway, the Double-Arrow warning sign should be used (sec. 1C-34).

1B-26 Do Not Enter Sign (R5-1)

The standard, and minimum, size of the DO NOT ENTER sign shall be 24 inches square. It shall be conspicuously placed in the most appropriate position at the end of a one-way roadway or ramp to prohibit traffic from entering the restricted section. It should normally be mounted on the right-hand side of the roadway, facing traffic entering the roadway or ramp in the wrong direction. A second sign on the left-hand side of the roadway may be justified, particularly where traffic may be approaching in a turn (fig. 1-3). The sign shall be erected in accordance with the general requirements for sign placement (secs. 1A-22, 23).



R5-1
24" x 24"



R5-2
24" x 24"



R5-3
24" x 12"

1B-27 Selective Exclusion Signs

The laws of some States permit the State or local authority having jurisdiction to exclude trucks or other commercial vehicles from any designated highway where signs have been placed giving notice thereof. These signs have not been standardized, but NO TRUCKS (R5-2), TRUCKS EXCLUDED, and COMMERCIAL VEHICLES EXCLUDED are suggested as suitably brief and specific messages.

It is similarly provided in some States that the proper authority may exclude pedestrians, bicycles, or other nonmotorized traffic from controlled-access roadways and shall erect signs setting forth such restrictions. Such signs may clearly indicate the type of traffic that is admitted or the type that is excluded.

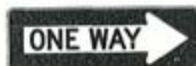
A suitable model for exclusion legislation may be found in the Uniform Vehicle Code (secs. 11-313 and 14-113).

Because of the variety of possible messages for these signs, it is not practicable to fix standard sizes for them as a class. In all cases the lettering should be large enough to give adequate legibility. They shall be conspicuously placed, in accordance with the general requirements for sign placement (secs. 1A-22, 23) at all entrances to the restricted roadway.

Where an unrestricted roadway intersects the restricted roadway the Exclusion sign should be placed on the right-hand side of the restricted roadway approximately 25 feet from the intersection so as to be clearly visible to all drivers and others turning into the restricted roadway. A supplementary sign may be necessary on the left-hand side of the restricted roadway.

High-speed expressways with widely spaced access points are neither safe nor practical for pedestrian traffic. Except where sidewalks are provided, therefore, pedestrians will normally be excluded. A PEDESTRIANS PROHIBITED sign (R5-3) should be used at interchanges or elsewhere where pedestrians can enter the expressway right-of-way and endanger themselves or others, particularly where they attempt to cross the roadways. The sign may also be used at underpasses or elsewhere where safe pedestrian facilities are not provided. The sign should be erected wherever it can be most effective. Because of the length of the words constituting its legend, a horizontal panel is warranted, 24 inches by 12 inches in size. As an exception to the general rule, it need not be reflectorized or illuminated.

If an exclusion is to be governed by vehicle weight, a Weight Limit sign (sec. 1B-40) rather than an Exclusion sign should be used.



R6-1
36" x 12"



R6-2
18" x 24"

1B-28 One Way Sign (R6-1, R6-2)

The ONE WAY sign shall be used to indicate streets or roadways upon which vehicular traffic is allowed to travel in one direction only. The sign shall be either (a) a white arrow on a black horizontal rectangle of a standard, and minimum, size of 36 inches by 12 inches, with the words ONE WAY centered in the arrow (R6-1); or (b) a vertical rectangle of a standard, and minimum, size of 18 inches by 24 inches, with black lettering and

arrow on a white background (R6-2). The vertical design has advantages where lateral space is limited. Both designs must be made in rights and lefts.

One Way signs shall be placed on the near right-hand and the far left-hand corners of the intersection so as to face traffic entering or crossing the one-way street (fig. 1-3). Where the intersection is signalized, the signs shall be placed near the appropriate signal faces. One Way signs shall also be placed parallel to the one-way street directly opposite the exits from alleys and other public ways. A One Way sign should always be used, where applicable, and may be supplemented by a Turn Prohibition sign (sec. 1B-16).

One Way signs are not ordinarily needed on the one-way roadways of divided expressways, where the design of interchanges indicates the direction of traffic on the separate roadways.

1B-29 Reversible Flow and Periodic One-Way Signs

To a growing extent traffic capacity of city streets is being increased by reversing the direction of travel in certain lanes at certain times of day, or by putting the entire street under one-way operation during certain hours, sometimes in different directions at different times of day. Standard signs applicable to such conditions have not been developed, but experimentation and research is widespread, and the National Joint Committee on Uniform Traffic Control Devices expects to recommend suitable standards as soon as satisfactory techniques have been found acceptable.



R6-3
24" x 30"



R6-4
24" x 30"

1B-30 One Way Transition Signs (R6-3, R6-4)

Appropriate transition signs shall be used on a one-way street or roadway in advance of an intersection or the end of a divided roadway beyond which the one-way traffic regulation does not apply. Either of two standard designs may be used. The first design shall carry the legend TWO WAY TRAFFIC AHEAD (R6-3) and the alternate legend shall be END ONE WAY (R6-4). Both signs shall have a standard, and minimum, size of 24 inches by 30 inches.

These signs shall be placed on both the right-hand and left-

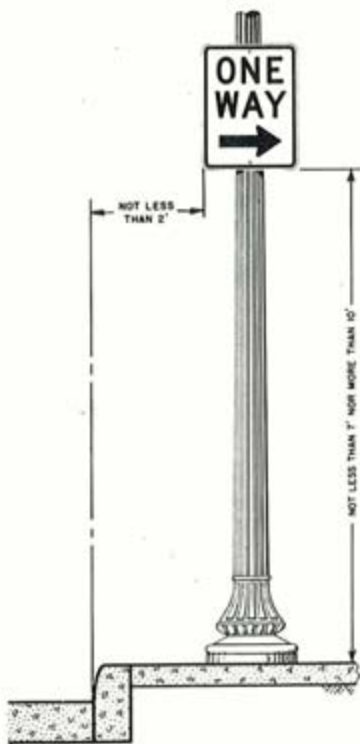
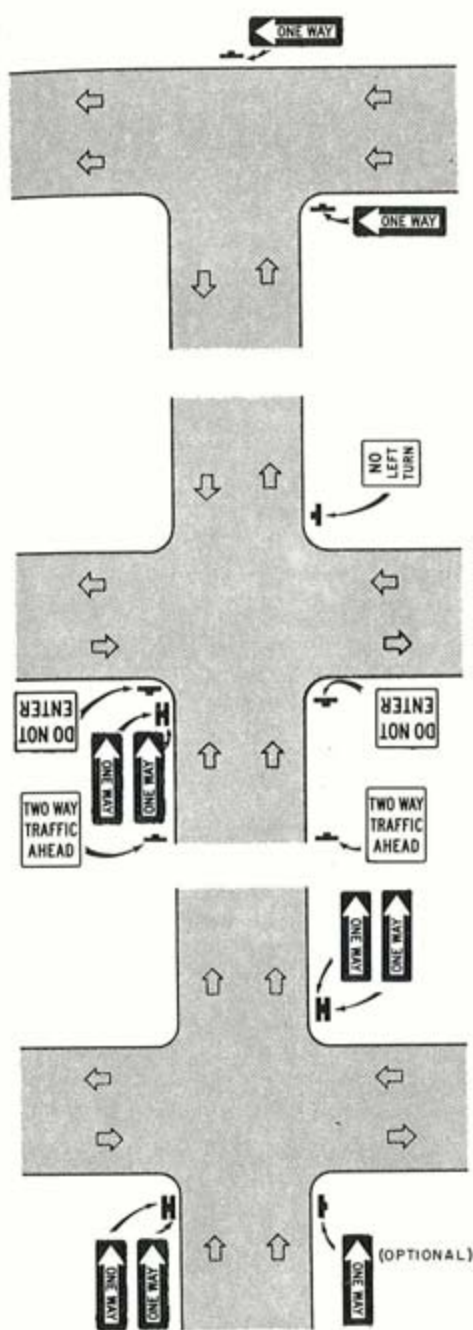


Figure 1-3. Location of One Way signs.

hand sides of the street or roadway at an appropriate distance, depending on approach speeds and type of facility, from the intersection where two-way traffic is resumed (fig. 1-3). For an advance warning, the End One Way sign may be placed some distance in advance of the intersection, with a supplementary legend, or separate plate, reading 500 FEET or other appropriate distance.

These signs should not be used on a one-way connecting ramp or at a T intersection where a one-way street ends.

1B-31 Parking and Stopping Signs (R7 series)

Parking signs and other signs governing the stopping and standing of vehicles cover a very wide variety of regulations and only general specifications can be laid down here. Typical examples are as follows:

- NO PARKING ANY TIME (R7-1)
- NO PARKING 8:30 A M TO 5:30 P M (R7-2)
- NO PARKING EXCEPT SUNDAYS AND HOLIDAYS (R7-3)
- NO STOPPING OR STANDING (R7-4)
- ONE HOUR PARKING 9 A M-7 P M (R7-5)
- NO PARKING LOADING ZONE (R7-6)
- NO PARKING BUS STOP (R7-7)

Many other wordings will be found necessary to fit local conditions.



R7-1
12" x 18"



R7-5
12" x 18"



R7-107
12" x 18"



R7-108
12" x 18"



R7-201
12" x 6"

The legend on parking signs shall state whatever regulations apply, but the signs shall conform to the standards of shape, color, location, and use. Generally, parking signs should display such of the following information as is appropriate, from top to bottom of the sign, in the order listed:

1. Restriction or prohibition.
2. Time of day it is applicable, if not at all hours.
3. Days of week applicable, if not every day.

In addition there should be a single-headed arrow pointing in the direction the regulation is in effect if the sign is at the end of a zone, or a double-headed arrow pointing both ways if the sign is at an intermediate point in a zone.

As an alternate to the arrow, if the signs are posted facing

traffic at an angle of 90 degrees to the curb line, there may be included on the sign, or on a separate plate below the sign, such legend as **HERE TO CORNER, THIS SIDE OF SIGN, or BETWEEN SIGNS.**

Where parking is prohibited at all times or at specified times, parking signs shall have red letters and border on a white background (Parking Prohibition signs); and where only limited-time parking is permitted, or where parking is permitted only in a particular manner, the signs shall have green letters and borders (Parking Restriction signs).

For emphasis the word **NO** or the numeral showing the time limit in hours or minutes may be in a reversed color arrangement in the upper left-hand corner of the sign, i.e., in white on a rectangular area of red or green (R7-107, 108).

Where parking is prohibited during certain hours and permitted under a time limit at other periods of the day, two parking signs should ordinarily be used, the red above the green. As an alternative both messages, in different colors, may be used on a single plate, with the sign lengthened vertically if necessary.

On urban streets parking signs shall have a standard, and minimum, size of 12 inches by 18 inches. Special parking signs (sec. 1B-33) should be used on rural roads and expressways.

At the transition point between two parking zones it may be advantageous to use, instead of two signs, a single sign 20 inches by 18 inches. This is in effect two standard signs mounted side by side. Such a sign should display a right and a left arrow pointing in the directions that the respective restrictions apply.

Where it is essential that all traffic lanes be kept open for moving traffic, some city authorities make it a practice to tow away illegally parked vehicles. To make the parking regulations more effective, and to improve public relations by giving a definite warning, a sign reading **TOW-AWAY ZONE (R7-201)** may be appended to, or incorporated in, any parking prohibition sign. It should have red legend on a white background.

1B-32 Placement of Parking Signs

Parking signs in residence and business districts shall be mounted not less than 7 feet nor more than 10 feet above the top of the curb, and with no part of the sign less than 2 feet back from the face of the curb. Where space is limited, or existing poles are close to the curb, a lesser lateral clearance is permissible (sec. 1A-23). If arrows are used to indicate the extent of the restricted zones, the signs should be set at an angle of not less than 30 degrees nor more than 45 degrees with a line parallel to the flow of traffic so as to be visible to approaching traffic.

Care should be exercised to see that the single arrows point in the proper direction to indicate the regulated zone. Where the zone is longer than 200 feet, signs showing a double arrow will be needed at intermediate points within the zone, at intervals not exceeding 200 feet.

If the signs are mounted at an angle of 90 degrees to the curb line, two signs must be mounted back to back at the transition point between two parking zones, each with the appended plate reading THIS SIDE OF SIGN. At intermediate points within a zone a single sign without any arrow or appended plate should be used, facing in the direction of approaching traffic. Otherwise the standards of placement should be the same as for signs using directional arrows.

1B-33 Parking Signs in Rural Districts (R8 series)

In rural districts special parking prohibition signs may be necessary to emphasize the provisions of law that no person shall stop, park, or leave standing any vehicle on the paved or traveled part of the highway where it is practical to leave such vehicle off such part of the highway. The signs should be used primarily at points of scenic beauty or other points of interest where violations are prevalent, and where stopping or parking on the pavement obstructs the normal flow of traffic.

The legend on rural parking signs must be appropriate to the restrictions imposed. The legend NO PARKING ON PAVEMENT (R8-1) is generally suitable, except where a roadway has paved shoulders, in which case NO PARKING EXCEPT ON SHOULDER (R8-2) is less likely to cause confusion. If necessary the word STOPPING may be substituted for PARKING. To prohibit any parking the simple legend NO PARKING (R8-3) is suitable.



R8-1
24" x 30"

On expressways the stopping of vehicles not only can cause an undesirable interference with free movement, but can be exceedingly hazardous. If an emergency stop is necessary it should be made on the shoulder, well off the pavement. Even parking on the shoulder, however, can be dangerous, especially during

the accompanying procedures of driving off the road or back onto it. Except where adequate paved turnouts are provided, the road shoulders should be reserved only for emergency use by vehicles that must leave the roadway to stop because of mechanical breakdown, tire trouble, lack of fuel, or other emergencies involving the vehicles or their occupants.

The EMERGENCY PARKING ONLY sign (R8-4) may be used a short distance beyond an interchange entrance and at random intervals as needed, particularly where scenic or other attractions create a tendency to stop temporarily, and no turnouts or rest areas have been provided.

The standard size for rural parking signs shall be 24 inches by 30 inches. On secondary roads a smaller size of 18 inches by 24 inches is permitted. Expressway parking signs should be at least 36 inches by 48 inches.

Interstate.—Parking signs prescribed for the Interstate System include only the legends EMERGENCY PARKING ONLY and EMERGENCY STOPPING ONLY. For these signs a horizontal rectangle in a size of 48 inches by 36 inches is prescribed.

Rural parking signs shall be erected in accordance with the general requirements for sign placement (secs. IA-22, 23).

1B-34 Walk on Left Sign (R9-1)

The pedestrian sign WALK ON LEFT FACING TRAFFIC may be used to encourage safer pedestrian habits on rural highways where no sidewalks are provided. This sign shall be in only one standard size of 18 inches by 24 inches. It should be erected on the right-hand side of the road where pedestrians must walk on the pavement or road shoulder in the absence of pedestrian pathways or sidewalks.



R9-1
18" x 24"



R9-3
12" x 18"

1B-35 Pedestrian Crossing Signs (R9-2 to R9-5)

Pedestrian Crossing signs may be used to supplement traffic-signal control, or to aid in limiting pedestrian crossing to safe places. They will ordinarily be required only in business dis-

tricts or at signalized intersections. The following messages are typical:

CROSS ON GREEN LIGHT ONLY (R9-2).

CROSS ON WALK SIGNAL ONLY (R9-3).

CROSS ONLY AT CROSS WALKS (R9-4).

NO PEDESTRIAN CROSSING (R9-5).

Pedestrian Crossing signs shall have a standard size of 12 inches by 18 inches. They shall be erected to face pedestrians about to cross the roadway.

1B-36 Pedestrian-Actuated Signal Sign (R9-6, R9-7)

The Pedestrian-Actuated Signal sign should be used where it is desired to enforce pedestrian observance of traffic-actuated signals. To permit pedestrians to register a demand for the Go signal, a pedestrian pushbutton should be conveniently mounted on a post at each end of each crosswalk controlled by the traffic-actuated signals. Such a pushbutton should be at a height of from 3½ to 4 feet above the sidewalk, and the Pedestrian Actuated Signal sign, reading PUSH BUTTON FOR GREEN LIGHT (R9-6) or PUSH BUTTON FOR WALK SIGNAL (R9-7), should be mounted immediately above it. **The sign shall be 9 inches by 12 inches in size.**



R9-6
9" x 12"



R10-1
24" x 30"

1B-37 Keep Off Median Sign (R10-1)

On divided roadways having no physical barrier between the separated roadways, drivers often attempt to cross the median, particularly where such crossing offers an opportunity to correct for having made an error in choice of direction at an intersection or interchange. A median also may be an inviting place to park. On a high-speed expressway these practices can be dangerous and should be prohibited.

The KEEP OFF MEDIAN sign shall have a standard, and minimum, size of 24 inches by 30 inches. On expressways it should be at least 36 inches by 48 inches.

The sign should be erected on the left of the roadway within the median wherever there is a tendency for drivers to enter or

cross and at random intervals as needed.

Interstate.—This sign, in a size of 48 inches by 60 inches, is prescribed for the Interstate System.

1B-38 Road Closed Sign (R10-2)

The **ROAD CLOSED** sign shall be used to mark roads that have been closed to all traffic (except the contractor's equipment and other authorized vehicles) either because of construction or maintenance operations or because of a temporary emergency such as high water or a landslide. It should not be used where traffic is maintained or where a route is detoured several miles in advance of the actual construction or blockade. In the latter case the Local Traffic Only sign (sec. 1B-39) should be used.

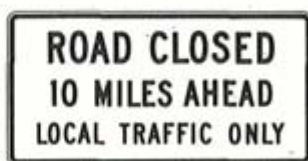
The Road Closed sign shall have a standard, and minimum, size of 48 inches by 30 inches.

At construction operations the sign should be mounted on a Class I barricade (sec. 5C-3) in or near the center of the roadway, at a height of 5 feet to the bottom of the sign. For temporary emergencies it may be erected at the roadside, as close as practical to the pavement edge. If a temporary or detour route begins at a barricade, a Temporary Route assembly (sec. 1D-19) with a directional arrow (sec. 1D-16) or a Detour Arrow sign (sec. 5B-39) should be erected on or in advance of the barricade, wherever it will be most effective. The Detour Arrow sign is usually placed just below the Road Closed sign.

Where the sign faces through traffic, it shall be preceded by an Advance Road Closed warning sign (sec. 5B-21) and, if applicable, an Advance Detour warning sign (sec. 5B-20).



R10-2
48" x 30"



R10-3
60" x 30"

1B-39 Local Traffic Only Sign (R10-3)

The Local Traffic Only sign shall be used where through traffic must detour to avoid a closing of the highway for construction or maintenance work, or for some temporary emergency, some distance beyond, but where the highway is open for traffic up to the point of closure. It shall carry the legend **ROAD CLOSED (10) MILES AHEAD—LOCAL TRAFFIC ONLY**. It shall have a

standard, and minimum, size of 60 inches by 30 inches.

It should be erected at the right of the roadway or, preferably, on a narrow barricade in the center of the roadway, if pavement width permits. Normally it will be accompanied by a Temporary Route assembly (sec. 1D-19) with a directional arrow (sec. 1D-16) or a Detour Arrow sign (sec. 5B-39) indicating the proper route for through traffic. The words BRIDGE OUT (or similar message) may be substituted for ROAD CLOSED where applicable. Where the sign faces through traffic, it shall be preceded by an Advance Road Closed warning sign (sec. 5B-21) with the secondary legend AHEAD and, if applicable, an Advance Detour warning sign (sec. 5B-20).

1B-40 Weight Limit Sign (R10-4, R10-5)

Due to seasonal weakening of the road surface, obsolescence of bridges or pavements, or other impairment of a roadway, it is often necessary to limit the load permitted on a roadway. The Weight Limit sign, carrying the legend WEIGHT LIMIT (10) TONS, shall be used to indicate such restrictions. The sign shall have a standard, and minimum, size of 18 inches by 24 inches.



R10-4
18" x 24"

It shall be located immediately in advance of the section of highway or the structure to which it applies. In the case of an extended length of restricted road, it shall be placed on the right-hand side of the restricted roadway approximately 25 feet from any intersected road on which the restriction does not apply, so as to be clearly visible from all vehicles turning into the restricted roadway. A supplementary sign may be necessary on the left-hand side of the roadway.

Where the restriction applies to axle weight rather than gross load the legend shall be AXLE WEIGHT LIMIT (5) TONS (R10-5).

Weight Limit signs shall be erected in accordance with the general requirements for sign placement (secs. 1A-22, 23).

1B-41 Other Regulatory Signs

Regulatory signs other than those specified above may be required to aid the enforcement of other laws or regulations.

They should be of adequate size, and designed with black lettering on a white background (except large signs, which may have a black background, as provided in sec. 1A-11), on rectangular plates with the longer dimension vertical. They should be mounted in accordance with the general requirements for sign position (secs. 1A-22, 23), or as necessary to make them most effective.

Typical miscellaneous regulatory signs are KEEP OFF WET PAINT, TRACTORS WITH LUGS PROHIBITED, NO DUMPING ALLOWED, NO HITCH HIKING, DO NOT THROW LITTER, and NO FISHING FROM BRIDGE. The uses for such signs are sufficiently obvious to require no detailed specifications.

C—WARNING SIGNS

Section 1C-1 Application of Warning Signs

Warning signs shall be used for the purpose of warning traffic of existing or potentially hazardous conditions either on or adjacent to the road. Warning signs require caution on the part of the motorist and may call for reduction of speed or other maneuver in the interest of his own safety and that of other motorists and pedestrians. Adequate warnings are of great assistance to the vehicle operator and are valuable in safeguarding and expediting traffic. However, the use of warning signs should be kept to a minimum. Too frequent use of them or their unnecessary use to warn of conditions which are apparent tends to breed disrespect for all signs. Improved highway design generally reduces the need for warning signs.

Even on the most modern expressways, however, there will be some conditions to which the motor-vehicle driver must be specially alerted by means of warning signs. These conditions are in varying degree common to all highways, and existing standards for warning signs are generally applicable to expressways.

Typical locations and hazards that may warrant the use of warning signs are:

1. Changes in horizontal alinement (secs. 1C-4 to 9).
2. Intersections (secs. 1C-10 to 13).
3. Advance warning of control devices (secs. 1C-14 to 16).
4. Converging traffic lanes (secs. 1C-17, 18).
5. Narrow roadways (secs. 1C-19 to 21).
6. Changes in highway design (secs. 1C-22, 23).
7. Grades (sec. 1C-24).
8. Roadway surface conditions (secs. 1C-25 to 29).
9. Schools (sec. 1C-30).

10. Railroad crossings (secs. 1C-31, 32).
11. Entrances and crossings (sec. 1C-33).
12. Miscellaneous (secs. 1C-34, 35, 37).

The Advisory Speed plate (sec. 1C-36), used only to supplement one of the other standard warning signs, is in a special category as to design and application, as is the Traffic Signal Speed sign in relation to traffic signals.

Special warning signs at highway construction and maintenance sites are dealt with in part V (secs. 5B-14 to 34)

Determination of the sign to be erected shall be in accordance with the criteria set forth in the following pages. When doubt exists as to which sign to use, the one requiring the minimum restriction shall be erected.

Warning signs specified herein cover most conditions that are likely to be met. **If other warnings are needed, the signs shall be of standard shape and color for warning signs, and the legends shall be brief and simple.**

1C-2 Design of Warning Signs

All warning signs, with the exception of the railroad crossing signs, the Large Arrow signs, and the Advisory Speed plate, shall be diamond-shaped (square with one diagonal vertical) and shall have a "Highway Yellow" background with black legend. Certain exceptions to the diamond shape are provided for in the case of temporary signs for highway construction and maintenance (part V).

All warning signs having significance during the hours of darkness shall be reflectorized or illuminated.

The standard size for each warning sign prescribed herein is shown with the illustration accompanying the specification. **The standard size for diamond-shaped signs, except where otherwise specified, shall be 30 inches by 30 inches.** Where conditions of speed, volume, or special hazard require greater visibility or emphasis, larger signs should be used, with symbol or legend enlarged approximately in proportion to outside dimensions.

To carry proper emphasis among large signs for other purposes, all warning signs on expressways should be not less than 36 by 36 inches in size, and those carrying word messages preferably not less than 48 by 48 inches. On slow-speed interchange connections with secondary roads the standard size will usually be adequate.

On minor roads and secondary city streets, signs smaller than the standard sizes may be adequate. Under such conditions, except where the standard size is herein specifically indicated as

the minimum size, any warning sign may be used with sides 6 inches less than the standard here shown.

To permit the use of standard dies and templates the outside dimensions of warning signs should ordinarily be in multiples of 6 inches. Letter heights should be rounded to the nearest integral inch that will best fit the plate used for legibility and appearance.

1C-3 Placement of Warning Signs

Warning signs shall be erected in accordance with the general requirements for sign position (secs. 1A-22, 23).

Since warning signs are primarily for the protection of the driver who is unacquainted with the road, it is very important that care be given to their locations. In rural areas warning signs should normally be placed about 750 feet in advance of the hazard or condition warned of. On high-speed roads, and particularly on expressways, advance warning distances may have to be as great as 1,500 feet or more. On the other hand, in cities, where speeds are relatively low, the advance distance should be only about 250 feet.

The actual advance warning distance will be determined by two factors, the prevailing speed and the condition warned against. These bear respectively on the time available to the driver to comprehend and react to the message, and the time needed by him to perform any necessary maneuver. Given the same prevailing speed, for example, a Signal Ahead warning sign should be placed farther in advance than a Side Road sign.

The effectiveness of any warning signing should be tested periodically under both day and night conditions.

Figures 1-4 and 1-5 show typical installations of standard warning signs. The placement of temporary warning signs used at highway construction and maintenance sites is covered in part V of this Manual.

1C-4 Turn Sign (W1-1)

The Turn sign showing an arrow bent at a right angle (W1-1, right or left), shall be used to mark curves on which a ball-bank indicator shows banks of 10 degrees or more at a speed of 30 miles per hour. Where a Turn sign is warranted, a Large Arrow sign (sec. 1C-9) shall be used on the outside of the turn. Additional protection may be provided by use of the Advisory Speed plate (sec. 1C-36).

1C-5 Curve Sign (W1-2)

The Curve sign, showing a curved arrow (W1-2, right or left), shall be used to mark a curve where a test with a ball-bank indica-

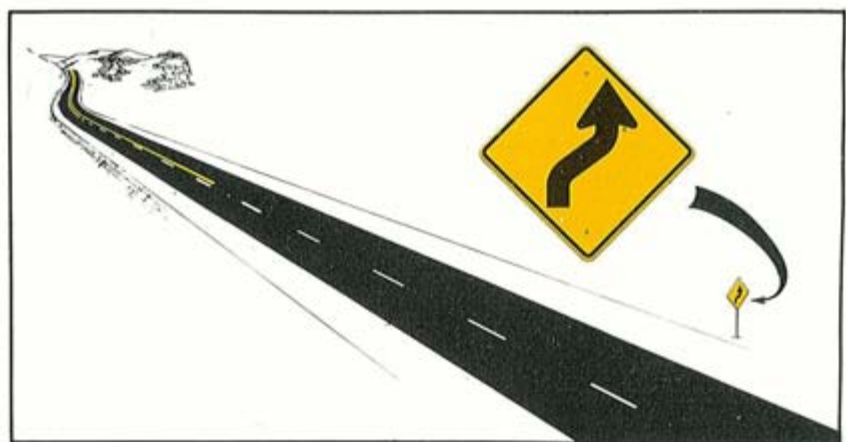


Figure 1-4. Typical applications of Warning signs.

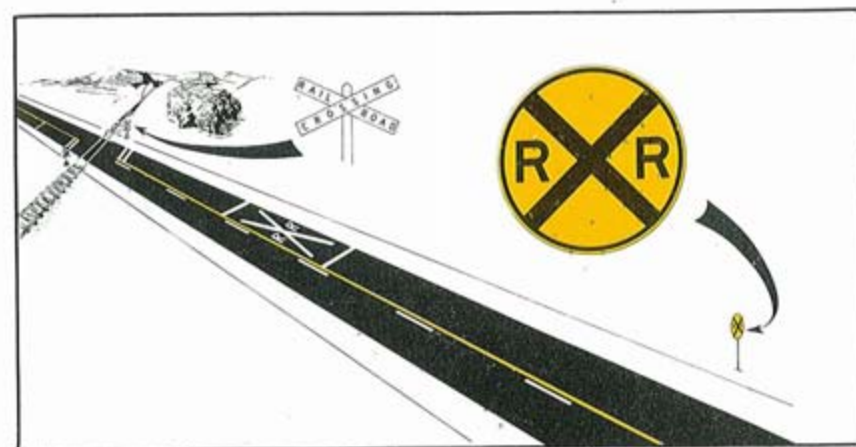


Figure 1-5. Typical applications of Warning signs.

tor gives readings of 10 degrees or more at speeds between 30 and 60 miles per hour. Additional protection may be provided by the use of the Advisory Speed plate (sec. 1C-36).



W1-1
30" x 30"



W1-2
30" x 30"

1C-6 Reverse Turn Sign (W1-3)

Where two turns or a curve and a turn in opposite directions, as defined in the warrants for Turn and Curve signs (secs. 1C-4, 5) are separated by a tangent of less than 400 feet, a Reverse Turn sign shall be used, showing an arrow bent twice in opposite directions at right angles. If the first turn is to the right, a Right Reverse Turn sign (W1-3R) shall be used, and if the first turn is to the left, a Left Reverse Turn sign (W1-3L).

For additional protection the Advisory Speed plate (sec. 1C-36) may be used.



W1-3
30" x 30"



W1-4
30" x 30"

1C-7 Reverse Curve Sign (W1-4)

Where two curves in opposite directions, as defined in the warrants for Curve signs (sec. 1C-5) are separated by a tangent of less than 400 feet, a Reverse Curve sign shall be used, showing an arrow curved twice in opposite directions. If the first curve is to the right, a Right Reverse Curve sign (W1-4R) shall be used, and if the first curve is to the left, a Left Reverse Curve sign (W1-4L).

For additional protection the Advisory Speed plate (sec. 1C-36) may be used.

1C-8 Winding Road Sign (W1-5)

The Winding Road sign showing an arrow bent four times in opposite directions shall be used where there is a series of five or more turns or curves, as defined in the warrants for Turn and Curve signs (secs. 1C-4, 5), separated by tangent distances of less than 400 feet. If the first turn or curve is to the right, a Right Winding Road sign (W1-5R) shall be used, and if the first turn or curve is to the left, a Left Winding Road sign (W1-5L).

The Winding Road sign shall be erected at the beginning of the first curve. In advance of this sign either a Turn or a Curve sign shall be erected showing the direction of the first curve.

Additional protection may be provided by the installation of road delineation markers (sec. 2D-3), and by use of the Advisory Speed plate (sec. 1C-36). Where there are fewer than five curves in succession, one or more Reverse Turn or Reverse Curve signs should be used.



W1-5
30" x 30"



W1-6
48" x 24"



W1-7
48" x 24"

1C-9 Large Arrow Sign (W1-6, W1-7)

The Large Arrow sign shall be a horizontal rectangle, 48 inches by 24 inches in size, having a large arrow pointing to right or left (W1-6) or to both right and left (W1-7). It shall have a yellow background with symbol in black.

On minor roads and city streets a smaller size of 40 inches by 20 inches, heretofore the standard size, may be used while stocks last.

A Large Arrow sign is particularly useful at night to give notice of a sharp change of alinement such as at a curve or turn. It may also, in a single- or double-arrow design, be used at T or Y intersections that have proved hazardous. The sign shall not be used to mark the ends of median strips, center piers, etc., where there is no change in the direction of travel.

The Large Arrow sign shall be erected on the outside of a curve or on the far side of an intersection, in line with, and at right angles to, approaching traffic. It should be mounted high enough to be visible for at least 500 feet in advance of the sign. No

exact specifications can be given for the placement of this sign. Its location must be checked by trial runs over the road by day and by night.

1C-10 Cross Road Sign (W2-1)

The Cross Road sign, showing a vertical cross symbol, shall be erected on a through highway to indicate the presence of a cross road. Its use should be restricted to intersections with roads that are improved to such an extent that there is likely to be a fairly large volume of traffic entering or crossing the through route and where poor sight distance or obscured entrances make it advisable that the intersection be called to the motorist's attention. It should not ordinarily be used where Junction signs (sec. 1D-13) or Advance Turn Arrows (sec. 1D-15) are present. Cross Road signs should not be erected at unimproved intersecting roads. Too frequent use of the Cross Road sign should be avoided.

If there is a considerable difference in the importance of the intersecting roads, the more important route may be shown by a heavier line in the diagram. Since this requires the stocking of several different designs, however, and since a turn in a numbered route is shown by Route Turn Assemblies (sec. 1D-15), the use of different widths of line is not mandatory.



W2-1
30" x 30"



W2-2
30" x 30"



W2-3
30" x 30"

1C-11 Side Road Sign (W2-2, W2-3)

The Side Road sign, showing a side-road symbol, either left or right, and at an angle of either 90 or 45 degrees, shall be used in advance of a side-road intersection according to the same warrants and specifications as set forth for the Cross Road sign (sec. 1C-10).

The relative importance of the intersecting roads may be shown by different widths of line (sec. 1C-10).

1C-12 T Symbol Sign (W2-4)

The T Symbol sign shall be used to warn traffic approaching a T intersection on the road that forms the stem of the T, i.e., where traffic must make a turn either to the right or to the left. The sign should not generally be used on an approach where traffic is required to stop before entering the intersection, nor at a T intersection that is channelized by traffic islands, nor where Junction signs or Advance Turn Arrows are present.

The relative importance of the intersecting roads may be shown by different widths of line (sec. 1C-10). It may be desirable to place a double-headed Large Arrow sign at the head of the T directly in line with approaching traffic (sec. 1C-9).



W2-4
30" x 30"



W2-5
30" x 30"

1C-13 Y Symbol Sign (W2-5)

The Y Symbol sign shall be used to warn motorists approaching a Y intersection on the road that forms the stem of the Y. It shall not be used at a Y intersection that is channelized by traffic islands, nor, generally, where Junction signs or Advance Turn Arrows are present.

The relative importance of the intersecting roads may be shown by different widths of line (sec. 1C-10). It may be desirable to erect a double-headed Large Arrow sign (sec. 1C-9) at the fork of the Y directly in line with approaching traffic.

1C-14 Stop Ahead Sign (W3-1)

The STOP AHEAD sign shall be a minimum of 30 inches by 30 inches in size.

The Stop Ahead sign shall be used in advance of a Stop sign (sec. 1B-4) that is not visible for a sufficient distance to permit the driver to bring his vehicle to a stop at the Stop sign. Obstruction of view due to horizontal or vertical curves, parked vehicles, or foliage, and high approach speeds, should be considered in determining the need for the erection of this sign. In

some cases it may be used for emphasis where there is poor observance of the Stop sign.



W3-1
30" x 30"



W3-2
30" x 30"

1C-15 Yield Ahead Sign (W3-2)

The YIELD AHEAD sign shall be a minimum of 30 inches by 30 inches in size.

The Yield Ahead sign shall be used in advance of a Yield sign (sec. 1B-7) that is not visible for a sufficient distance to permit the driver to bring his vehicle to a stop at the Yield sign. Other considerations for the use of the Yield Ahead sign are the same as those given for the Stop Ahead sign (sec. 1C-14).

1C-16 Signal Ahead Sign (W3-3)

The SIGNAL AHEAD sign shall be used in advance of any rural signalized intersection where the signal is not visible for a distance of 600 feet in advance of the intersection, or in advance of any signalized intersection where the prevailing approach speeds or conditions of visibility are such as to justify an advance warning.

Use of this sign is warranted where horizontal or vertical curves limit the sight distance on the approach to traffic signals, or where lights or illuminated signs at the intersection may distract the driver's attention from the signal.



W3-3
36" x 36"



W4-1
30" x 30"

1C-17 Merging Traffic Sign (W4-1)

The MERGING TRAFFIC sign should be used just in advance of a point where two roadways converge at a flat angle and no turning

conflict occurs, to warn motorists that merging movements may be encountered.

The sign should be erected on the side of the major roadway on which merging traffic will be encountered and in such a position as not to obstruct the driver's view of vehicles on the entering roadway. Ordinarily the motorist on the minor or ramp roadway is aware that he may have to merge with other traffic, but an additional sign may be placed on the entering roadway as a reminder. The sign can sometimes be placed so as to be visible from both roadways, but the motorist on the major roadway should be given the better view. Where two roadways of approximately equal importance converge, a sign should be placed on each roadway.

The Merging Traffic sign should not be used in place of a Pavement Width Transition sign where lines of traffic moving on a single roadway must merge due to a reduction in the actual or usable pavement width (sec. 1C-18).

Interstate.—On the Interstate System it is prescribed that the Merging Traffic sign, 48 inches by 48 inches in size, is to be erected on the appropriate side of the through roadway in advance of where another roadway enters.

1C-18 Pavement-Width Transition Sign (W4-2)

The Pavement-Width Transition sign shall be used to give advance notice of a reduction in the number of lanes of pavement, as from three lanes to two lanes, or from four lanes to two lanes. Pavement markings and, where applicable, reflector markers shall also be used to mark such transitions (secs. 2B-14, 2D-4).

The legend shall consist of a symbol showing the number of lanes in advance of, through, and beyond the transition. A broad line shall show the general configuration of each side of the roadway, and the lane lines shall be represented by short line segments. A no-passing line applying to traffic facing the sign shall be represented by a single solid line. Typical designs and applications are shown in figure 2-4.

On divided highways, where the width of the median island will permit, two such signs shall be placed facing approaching traffic, one on the right side and the other on the median island. In advance of the termination of an uphill climbing lane it is also desirable to place a supplemental sign to the left of the roadway.

This sign shall not be used in advance of the end of an acceleration lane. It should not ordinarily be used in advance of a point where a lane is closed by construction operations, except where

the condition will be stable for an appreciable duration. It should not be used alone at construction sites but must be accompanied by standard construction signs as described in part V. Careful supervision is necessary to insure the proper use of this sign.



W4-2
30" x 30"



W5-1
30" x 30"

1C-19 Road Narrows Sign (W5-1)

The **ROAD NARROWS** sign shall be used on two-lane roads where the pavement width is reduced abruptly to a width such that two cars cannot pass safely without reducing speed. It is not warranted on minor roads carrying a low volume of traffic, even though the narrowed pavement is only from 16 to 18 feet in width, but the approach to a reduction in pavement width below 16 feet should always be marked.

1C-20 Narrow Bridge Sign (W5-2)

The **NARROW BRIDGE** sign shall be used to indicate a bridge having a clear two-way roadway width of 16 to 18 feet, inclusive, or any bridge having a roadway clearance less than the width of the approach pavement. Additional protection may be provided by the use of reflector markers (sec. 2D-2).



W5-2
30" x 30"



W5-3
30" x 30"

1C-21 One Lane Bridge Sign (W5-3)

The **ONE LANE BRIDGE** sign shall be used to mark all two-way bridges having a clear roadway width of less than 16 feet. It may also be used on bridges having roadway widths of less

than 18 feet when commercial vehicles constitute a high proportion of the traffic using the structure or when the alinement approaching the structure is poor. Additional protection may be provided by the erection of reflector markers (sec. 2D-2).

1C-22 Divided Highway Sign (W6-1)

The DIVIDED HIGHWAY sign should be used on the approaches to a section of highway where the opposing flows of traffic are separated by a median island.



W6-1
36" x 36"



W6-2
36" x 36"

1C-23 Divided Highway Ends Sign (W6-2)

The DIVIDED HIGHWAY ENDS sign should be used at the end of a section of divided highway as a warning of two-way traffic ahead. The Two-Way Traffic Ahead sign (sec. 1B-30) should be used to give additional warning and notice just in advance of the transition to the two-way section.

1C-24 Hill Sign (W7-1, W7-2)

The HILL sign (W7-1) shall be used in advance of that part of a downgrade where the length, percent of grade, horizontal curvature, or combination thereof, is such as to require special precautions on the part of drivers of any or all vehicles.



W7-1
30" x 30"

The Hill sign shall be used in advance of downgrades of 6 percent or more for lengths given in the following table, or grades of 6 percent or more where any part of the grade is on a curve sharper

than 4 degrees. Generally, a Hill sign is warranted on descending grades under the following conditions:

- On a 6-percent grade more than 2,000 feet long;
- on a 7-percent grade more than 1,000 feet long;
- on an 8-percent grade more than 750 feet long;
- on a 9-percent grade more than 500 feet long;
- on an 11-percent grade more than 400 feet long;
- on a 13-percent grade more than 300 feet long;
- on a 15-percent grade more than 200 feet long;
- on a grade of 16 percent or more, of any length.

Where conditions may require a descent of the grade in intermediate or low gear, the Oversize Hill sign (W7-2), 48 by 48 inches in size with a secondary message USE SECOND GEAR, USE LOW GEAR, TRUCKS USE LOWER GEARS, or similar warning, may be used.

1C-25 Bump Sign (W8-1)

The BUMP sign shall be used to give warning of a sharp rise in the profile of the road that is sufficiently abrupt to create a hazardous condition, to cause considerable discomfort to passengers, to cause a shifting of the cargo, or to deflect a vehicle from its true course, even if such effects are manifested only at speeds 25 percent greater than the normal driving speed for that section of road.

The Bump sign should be used in preference to the Dip sign (sec. 1C-26) where the profile feature is actually a depression (such as a trench or the end of a pavement lift) but where the effect is that of an abrupt jar to the vehicle.

It may be desirable at some locations to supplement the Bump sign with an Advisory Speed plate (sec. 1C-36).



W8-1
30" x 30"



W8-2
30" x 30"

1C-26 Dip Sign (W8-2)

The DIP sign shall be used to give warning of a depression in profile that is sufficiently abrupt to create hazards of the type described in connection with the Bump sign (sec. 1C-25). The Dip

sign shall be applicable and used in the same manner as the Bump sign. Use of the Bump sign may be preferable in connection with certain types of depressions (sec. 1C-25).

The Dip sign shall not be used at a short stretch of depressed alignment that may momentarily hide a vehicle. Such a condition should be treated as a no-passing zone (secs. 2B-7 to 2B-10).

1C-27 Pavement Ends Sign (W8-3)

The PAVEMENT ENDS sign shall be used where a pavement surface changes from a hard-surfaced pavement to a low-type surface or an earth road.

1C-28 Soft Shoulder Sign (W8-4)

The SOFT SHOULDER sign shall be used where a soft shoulder presents a hazard to vehicles that may get off the pavement. This sign will usually be warranted on newly seeded shoulders or on roadways where shoulders are dangerously soft due to weather conditions. The sign should be removed when the hazard no longer exists.

One sign shall be placed at or near the beginning of the soft-shoulder condition, and other signs shall be placed at intervals throughout the length of the road where the condition exists.



W8-3
30" x 30"



W8-4
30" x 30"



W8-5
30" x 30"

1C-29 Slippery When Wet Sign (W8-5)

The SLIPPERY WHEN WET sign shall be used to warn traffic of an extraordinarily slippery condition when the pavement is wet. The use of this sign should be kept to an absolute minimum, and upon correction of the slippery condition the sign should be removed.

On rural highways it should be located 500 feet in advance of the beginning of the slippery section and at not greater than 2-mile intervals on long sections of such pavement. In urban districts these distances should be greatly reduced.

1C-30 School Signs (W9-1, W9-2)

The **SCHOOL** sign (W9-1) shall be used only at locations where school buildings or grounds are adjacent to the highway and where passing traffic creates a hazard. It shall remain in place during the school season.

The **SCHOOL CROSSING** sign (W9-2) shall be erected just in advance of an unsignalized crossing used by pupils going to and from school. Only crossings in the vicinity of the school shall be signed.



W9-1
30" x 30"



W9-2
30" x 30"

Ordinarily these signs need not be reflectorized, but if there is any considerable use made of the school building at night, it may be desirable to give them adequate nighttime visibility.

For added emphasis, yellow flashing lights may be used in conjunction with the standard school signs, to be operated only during the hours when children are going to or from school.

The crossing should be defined by crosswalk lines (sec. 2B-22).

Portable School signs shall not be placed within the roadway at any time.

1C-31 Railroad Advance Warning Sign (W10-1)

The **Railroad Advance Warning** sign shall be a yellow disk 36 inches in diameter, carrying a 90-degree crossbuck X and the letters RR in black.

The sign shall be used in advance of every railroad crossing, even if protected by crossbucks, signals, gates, or flagmen, except in the following instances:

1. At a minor siding or spur which is infrequently used and which is guarded when in use by a member of the train crew.
2. In the business districts of large cities where the crossings are fully protected and the physical conditions are such that even a partially effective display of the sign is impossible.

On a divided highway it may be desirable to erect a supplemental sign on the left of the roadway. In residence or business

districts where low speeds are prevalent, the sign may be placed a minimum distance of 100 feet from the crossing. If there is a street intersection within 100 feet, an additional sign or signs should be so placed as to warn traffic approaching the crossing from each intersected street.

Railroad Advance Warning signs are usually off the railroad right-of-way and are properly the responsibility of the public authorities.



W10-1
36" diameter



W10-2

1C-32 Railroad Crossbuck Sign (W10-2)

The crossbuck shall be white with the words **RAILROAD CROSSING** in black lettering. If there are two or more tracks, including sidings, the number of tracks shall be indicated on an auxiliary sign of inverted T shape mounted below the crossbuck. The crossbuck shall be used at every railroad crossing, alone or in combination with signals or gates.

The design of the commonly used Railroad Crossbuck, with auxiliary sign showing the number of tracks, has been standardized by the Association of American Railroads. Details are shown in *Railroad Highway Grade Crossing Protection*, Bulletin No. 5 (or subsequent issue), Association of American Railroads, Train Operation, Control, and Signals.⁷

The crossbuck sign is usually furnished and installed by the railroad company and is usually located on the railroad right-of-way. The distance that should be assumed to separate tracks before an additional crossing sign is considered necessary is 100 feet, unless local conditions require otherwise.

The sign shall be erected on the right-hand side of the roadway on each approach to the crossing, not more than 15 feet from the centerline of the nearest track. It shall not be less than 6 feet or more than 12 feet from the edge of the pavement, or less than 2 feet outside a paved shoulder or curb. The height should be 10 feet above the level of the highway to

⁷ Available from the Association of American Railroads, Transportation Building, Washington 6, D.C.

the center of the crossbuck, but this may be varied as required by local conditions.

The practice in some localities of placing the Railroad Crossbuck sign on a pedestal or island in the center of the roadway is strongly disapproved.

1C-33 Crossing Signs (W11 series)

The Crossing sign, indicating various types of crossings, as **TRUCK CROSSING (W11-1)**, **PEDESTRIAN CROSSING (or PED XING)**, **CATTLE CROSSING**, **DEER CROSSING**, or **CROSS WALK**, shall be used to warn of hazardous crossings of the types indicated. The signs may or may not be of a temporary or seasonal nature, but should be removed if and when the hazardous conditions are terminated.

In many instances it may be desirable to define the crossing by pavement markings (sec. 2B-22).



W11-1
30" x 30"



W12-1
24" x 24"

1C-34 Double Arrow Sign (W12-1)

The Double Arrow sign showing two arrows pointing downward to right and left shall be used at loading and refuge islands, traffic islands with curbs more than 3 inches high, and other obstructions in the roadway, where traffic is permitted to pass on either side of the island or obstruction. It shall have a standard, and minimum, size of 24 inches by 24 inches.

The sign should normally be mounted at a height of 7 feet to the bottom of the sign in order that it will be visible over preceding vehicles. On an island it should be mounted at the approach end or as close thereto as practicable. It should be mounted on the face of, or just in front of a pier or other large obstruction, in which case any stripe markings on the obstruction (sec. 2C-2) should be discontinued to leave a 3-inch space around the outside of the sign.

Where traffic must keep to the right of the island or other obstruction, the Keep Right regulatory sign (sec. 1B-25) should be used.

1C-35 Low Clearance Sign (W12-2)

The **LOW CLEARANCE** sign, indicating low overhead clearance and showing the exact amount of clearance at low bridges, underpasses, and other overhead structures, shall be used at all points where clearance is less than 12 inches greater than the maximum height of vehicle and load permitted under the State law. The actual clearance shall be shown on the sign to the nearest inch. Additional protection should be provided by markings on the structure itself (sec. 2C-2).



W12-2
36" x 36"

Where the clearance is less than the legal limit, a sign to that effect should be placed at the nearest intersecting road or wide point in the road at which a vehicle which may need to can detour or turn around.

In the case of an arch or other structure under which the clearance varies greatly, two or more signs should be used as necessary on the structure itself to give accurate information as to the practical clearance over the entire roadway.

Clearances should be checked periodically, particularly in areas where resurfacing operations have taken place.

1C-36 Advisory Speed Plate (W13-1)

The Advisory Speed plate shall be a square plate of a standard size of 18 inches by 18 inches. When used with a warning sign larger than 36 inches by 36 inches, it shall be 24 inches square.

The plate shall carry the message (35) M.P.H. in black on a yellow background. The speed shown shall be a multiple of 5 miles per hour. The plate may be used in conjunction with any standard yellow warning sign to indicate the maximum safe speed around a curve or through a hazardous location. It shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used, it shall be mounted on the same assembly with the standard warning sign, normally below it (fig. 1-1).

Except in emergencies, or at construction or maintenance sites, where the situation calling for an advisory speed is temporary, an Advisory Speed plate shall not be erected until the safe speed has been determined by accepted traffic engineering procedures. Because changes in surface characteristics, sight distance, etc., may alter the safe speed, each location should be periodically rechecked and the speed plate corrected if necessary.

The Advisory Speed plate is classed with the warning signs because it is, in effect, a part of a warning sign. It is not a regulatory sign, as the speed shown is not intended as an enforceable limit.

Interstate.—For the Interstate System an "Advisory Exit Speed" sign, reading EXIT 30 M.P.H., is prescribed for use where it is necessary to indicate a lower speed on an exit ramp. The sign is 48 inches by 60 inches in size, with black legend on a yellow background. Where an additional advisory speed indication is needed on the ramp well beyond the gore, a standard warning sign with an Advisory Speed plate (W13-1) is to be used.



W13-1
18" x 18"



W13-2
12" x 18"

1C-37 Traffic Signal Speed Sign (W13-2)

The Traffic Signal Speed Sign, reading SIGNALS SET FOR (25) M.P.H., is basically an information sign, though it does not logically fit into any of the general categories of information signs. In previous editions of this Manual it has been classed as a regulatory sign, and it is in accord with the design standards for regulatory signs. Though hardly a warning sign, it is in some ways related to the "advisory speed" signs, and accordingly is here treated in this category.

The sign may be used to indicate the beginning of a section of highway on which the traffic control signals are coordinated into a pretimed progressive system and timed for a specified speed at all hours during which they are operated on a stop-and-go basis. Where used, the sign should be mounted on, or as near as possible, to each signal face where the timed speed changes, and at intervals of several blocks throughout any section where the timed speed remains constant.

1C-38 Other Warning Signs

Warning signs other than those specified above may be required under special conditions. Special expressway design features may warrant the use of individual signs to meet unusual conditions. Warning signs should conform with the general specifications for shape, color, and placement of warning signs. (secs. 1C-2, 3).

Typical miscellaneous warning signs are PLAYGROUND, BRIDLE PATH, TUNNEL, DRAW BRIDGE, UNEVEN TRACKS, ROUGH ROAD, HIGH WATER, LOOSE GRAVEL, LOW SHOULDER, RANGE CATTLE, (FACTORY) ENTRANCE, EXIT, and FALLING ROCK. The applications of such signs are sufficiently apparent as to require no detailed specifications.

Special warning signs for highway construction and maintenance sites are to be found in part V of this Manual.

D-GUIDE SIGNS

Section 1D-1 Application of Guide Signs

Guide signs are essential to guide the motorist along established routes, to inform him of intersecting routes, to direct him to cities, villages, or other important destinations, to identify nearby rivers and streams, parks, forests, and historical sites, and generally to give him such information as will help him along his way in the most simple, direct method possible.

Guide signs are here considered in three major groups:

1. Route markers and auxiliary markers (secs. 1D-9 to 26).
2. Destination and distance signs (secs. 1D-27 to 40).
3. Information signs (secs. 1D-41 to 46).

In the following sections standards for guide signs are prescribed both for the ordinary public highways and streets that constitute by far the greatest part of the nationwide network, and for modern expressways of high-type design. Standard signing for the Interstate System, cited herein, is detailed in the *Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways*,⁸ published by the American Association of State Highway Officials. On any particular highway or class of highways, a consistent type of signs should be used.

Special types and applications of guide signs for use at construction and maintenance sites, and in civil defense traffic control, are treated in parts V and VI of this Manual.

⁸ Available from the American Association of State Highway Officials, 917 National Press Building, Washington 4, D.C.

Unlike most other types of signs, guide signs do not lose effectiveness by frequent use. When there is any doubt as to the advisability of any such sign, it should be erected. The amount of information on any one sign, or group of signs in close proximity to each other, however, should not be more than can be comprehended quickly by the drivers that are to be served. Since, furthermore, a guide sign must usually initiate a responsive decision, it must be so located as to permit any necessary maneuver to be made without confusion.

1D-2 Expressway Guide Signs

It is particularly true on expressways that guide signs offer problems of major importance. Expressway guide signs must be large enough and legible enough to be read from vehicles moving at high speed. At interchanges drivers must often depend altogether on signs in choosing the proper roadways, and because interchanges are relatively far apart, an error in turning may add miles to a driver's trip. On controlled-access roadways, also, it may be necessary to inform the traveler where he can reach certain service facilities that are not directly visible or accessible from the expressway. While expressway guide signs are in principle and in function the same as any other guide signs, the characteristic design of expressways requires special types of directional signs as herein specified.

The distinctive feature of expressway guide signs is that they incorporate all directional information needed—route numbers, destinations, and directions (or such of these as apply)—into single large signs, so placed in sequence as to give the traveler advance information concerning diverging roadways at an interchange and confirming information at the actual point of divergence. Since there are varying degrees to which expressway elements are incorporated into highway design, there is no sharp line to distinguish expressway signs or their application. Where, however, the following sections of this Manual refer specifically to expressway guide signs as a special category, it is assumed that such expressway sign standards will apply to the extent that full expressway design has been achieved. On the Interstate System, in many respects, even higher standards have been prescribed than for expressways generally.

1D-3 Design of Guide Signs

Guide signs convey various types of information, and a number of different colors are in use to make them distinguishable and legible (sec. 1A-11).

U.S. Route Markers and most State and local Route Markers,

and auxiliary markers used therewith, are designed with black legend on a white background.

Interstate.—Interstate Route Markers are of a distinctive red, white, and blue design, with auxiliary markers having white legend on a blue background. For business spurs and loops connecting with Interstate routes a green marker with white legend is provided for.

Destination and Distance signs are black on white, white on black, or white on green. Other informational signs, while generally of these same colors, are sometimes given special distinctive colors for easier recognition, as specified for individual signs in the following sections.

Interstate.—On the Interstate System, all directional signs (other than Route Markers and their auxiliaries) are white on green, except that signs for rest areas and services are white on blue.

Except for certain Route Markers, which are of special shapes as specified hereafter, guide signs are rectangular, generally with the larger dimension horizontal.

All guide signs that have significance at night shall be reflectorized or illuminated. Any doubt should be resolved in favor of reflectorization or illumination.

ID-4 Size of Guide Signs

Guide signs must, above all, be legible to the drivers of vehicles approaching them. For signs with standardized designs, such as Route Markers, it is practicable to fix standard sizes. For most directional signs, however, the legend is so variable that there can be no rigidly standardized plate. The sign size must be fixed primarily in terms of the length of the message and the size of the lettering and spacing necessary for proper legibility.

The legend is not the only determinant of sign size. Under some circumstances, particularly for overhead signs, the available space must be considered. A sign mounted over a particular roadway lane to which it applies may have to be limited in length to the width of the lane, so that another sign can be placed over an adjacent lane. Overhead signs also must ordinarily be limited in their vertical dimensions, since roadway clearance must be maintained without putting any part of the legend above the height range of visibility for motor-vehicle drivers.

ID-5 Lettering on Guide Signs

The lettering for highway signs, standardized for many years, has been a rounded style of capital letters (sec. 1A-15). There has, however, been an increasing use of lower-case letters on

expressway guide signs, particularly for names of destinations. There is some evidence that lower-case letters are more rapidly read than capitals, and that on a sign of a given size lower-case letters can provide a more legible message. Accordingly, lower-case letters are recognized as an equally acceptable alternative to capital letters for destination names on guide signs.

Interstate.—Standards for the Interstate System require that all names of places and highways on guide signs shall be in lower-case letters with initial capitals.

Other legend shall be in capital letters.

In all cases the heights herein specified for lower-case letters are the "loop heights" of those letters, i.e., the heights exclusive of ascending or descending stems. Initial capitals and numerals used with lower-case letters are $1\frac{1}{2}$ times as high as the lower-case letters.

ID-6 Size of Lettering

For guide signs with varying legend the standards for legibility must be established in terms of letter size. The legibility distance must give the driver sufficient time to read the sign before he has passed it. Although under the best conditions a guide-sign message can be read and understood in a brief glance, a reasonable safety factor must be allowed for inattention, blocking of view by other vehicles, unfavorable weather, inferior eyesight, or other causes for delayed or slow reading. On the other hand, the usual repetition of directional information on successive signs on the approach to an expressway interchange often gives a driver more than one opportunity to obtain the information he needs.

Though the reading time for any given sign varies greatly with the speed of approach, standard lettering sizes should be consistent on any particular class of highways. Actually, the same conditions that make for lower speed—heavy traffic, frequent intersections or interchanges, unfavorable alinement, or extraneous distractions—usually create a need for greater legibility, hence the size standards set forth here are related to the type of highway rather than to variable speeds on any class of highway.

The minimum sizes specified should, of course, be exceeded where conditions indicate a need for greater legibility.

In rural districts on major routes (other than expressways), the principal legend on guide signs shall be in letters at least 6 inches in height, whether capitals or lower case. On less important rural roads and on urban streets the principal legend shall be in letters at least 4 inches high, whether capitals or lower

case. Sign panels shall be large enough to accommodate the required legend without crowding.

On expressways the principal legend on a guide sign mounted at the roadside on a through lane shall be in letters at least 10 inches high if capitals, or at least 8 inches if lower case. Much larger lettering is necessary for destination signs at and in advance of major interchanges. Miscellaneous informational signs, not essential for directional guidance, may be in smaller lettering.

Because most overhead signs are used in critical locations, they should generally have considerably larger lettering than is required for roadside signs.

Interstate.—Standards for the Interstate System prescribe letter sizes in detail for each of the signs specified for use on the system.

ID-7 Amount of Legend on Guide Signs

Regardless of letter size, the legend on a guide sign must be so limited as to be readable during the few moments that a driver can turn his eyes from the road before him. Expressway guide signs, in particular, should be limited to three lines of principal legend on roadside signs, and two lines on overhead signs. This special limitation on overhead signs is desirable to keep all of the legend within the effective range of the driver's vision and adequately illuminated by the vehicle's headlights. It also recognizes the larger minimum letter size generally required for overhead signs.

For practical purposes, "principal legend" here includes only destinations—place names, route numbers, and highway and street names. Symbols, exit instructions, and cardinal directions may make up other "lines" of legend, within reasonable limits.

ID-8 Arrows on Guide Signs

Arrows are used on many guide signs to indicate the directions toward designated routes or destinations. Arrows are made to point horizontally or vertically, or at any desired angle to convey a clear comprehension of the direction to be taken. At right-angle intersections a horizontal arrow is appropriate. Since well designed expressway interchanges have no such sharp turns, a slanting arrow is to be preferred to a horizontal arrow in expressway directional signs. On a roadside sign a directional arrow for a straight-through movement should point vertically upward. For a turn the arrow should be pointed upward as will best suggest the plan of the intersection or interchange, and at an angle related to the sharpness of the turn.

On overhead signs directional arrows may be pointed upward

or downward as will be most effective. Where it is desired to indicate a lane to be followed, it is the usual practice to point the arrow downward toward the center of that lane. Where a direction of travel is to be shown, an upward pointing arrow, vertical or slanting, is to be preferred.

Interstate.—Standards for the Interstate System prescribe that all arrows shall point upward, except those on overhead destination signs directly above the through lanes to which they apply.

Arrows may be placed below the other sign legend, or to one side of it. On signs centered over the through lanes, a broad, short, downward pointing arrow below the legend is commonly used. At a turn-off an arrow at the far side of the sign may help to emphasize the directional significance of the sign. For adequate legibility it is recommended that the width across the barbs of the arrow be at least equal to the height of the largest letters on the sign, and for short downward-pointing arrows on overhead signs about $1\frac{3}{4}$ times the letter height.

1D-9 Route Markers and Auxiliary Markers

Route Markers shall be used to identify and mark numbered highway routes. Markers for each system of numbered highways shall be used only on routes of that respective system and the approaches thereto. Where two or more numbered routes follow the same section of highway, however, whether or not they are part of the same system, all of the applicable Route Markers, of whatever class, shall be displayed in combined mountings.

Interstate.—For the Interstate System, special Route Markers are prescribed, to be used only on that system and approaches thereto.

Route Markers are important to identify numbered highway routes, but to accomplish their purpose they are usually supplemented by various types of auxiliary markers to indicate junctions, turns, and route directions, as well as temporary, alternate, by-pass, and business routes, and detours. Except where used as Confirming or as Reassurance markers as hereinafter described (sec. 1D-10), or when incorporated into large directional signs on expressways, Route Markers are always mounted in conjunction with auxiliary signs to form Junction assemblies, Route Turn assemblies, Directional assemblies, or Trailblazer assemblies.

Route Markers, as such, have a less general application on expressways than on highways of older design, since route numbers and symbols are ordinarily incorporated into large interchange signs as provided for elsewhere in this Manual. Route

Markers in conjunction with auxiliary markers, used on other highways to show intersections and turns (including intersections with expressways), are not ordinarily used on expressways. Confirming Route Markers, however, should be used just beyond entrances and exits, and Reassurance markers at intervals as needed, along expressways.

1D-10 Design of Route Markers (M1-1, M1-2)

The U.S. Route Marker (M1-1) when used as a Confirming or Reassurance marker shall consist of a shield-shaped plate, of a standard size of 16½ inches by 16 inches, carrying the State name, the letters US and the route number in black legend on a white background. State Route Markers are designed by the individual State highway departments, but should be of approximately the same size as U.S. Route Markers.



M1-1
16½" x 16"



M1-2
24" x 24"



Interstate
Route Marker

When used in Junction assemblies, Route Turn assemblies, Directional assemblies, and Trailblazer assemblies, U.S. and State Route Markers shall consist of a square plate carrying only the white shield (or other distinctive shape) of the Route Marker with the route number in black. The area of the plate outside the Route Marker outline shall be black, without a border. The standard Assembly Route Marker plate shall be 24 inches square, with a small size 18 inches square for use on minor roads and secondary streets.

Enlarged Route Markers of any required size should be used where greater legibility is needed. The Assembly Route Marker may be used when an enlarged design is needed for a Confirming or Reassurance marker.

Interstate.—The Interstate Route Marker is a cut-out shield, in a red, white, and blue design. Confirming and Reassurance markers are of a 36-inch size. A 24-inch Route Marker is used on intersecting highways and approach roads to indicate an interchange with an Interstate route. An 18-inch size is used to make up a "Trailblazer" assembly (sec. 1D-26). When used on a large Exit or Advance Exit sign (secs. 1D-36 to 39) to indicate an interchange with another Interstate route, the marker omits the State name, and is of a 36-inch

size when destination names are in 12-inch letters (lower-case) or of a 48-inch size with 18-inch destination names. To direct traffic through or into the major business section of a city that is by-passed by an officially designated Interstate route, over an expressway that is not a part of the Interstate System, a special Business marker is provided for. This has white legend on a green background, and carries the number of the connecting Interstate route. A "loop" route leaves the Interstate route at an interchange on one side of the by-passed city and re-enters it at an interchange on the other side of the city. A "spur" takes business traffic into the by-passed city and back to the Interstate route over a single road and through the same interchange. The word INTERSTATE does not appear on the marker, as the route is not a part of the Interstate System. Except when used on an exit guide sign on the Interstate route, it is used only in a 24-inch size.

The American Association of State Highway Officials has authorized the use of a special Pan American Highway Route Marker on routes designated as parts of the Pan American Highway.

1D-11 Design of Route Marker Auxiliaries

For use with the 24-inch square Route Marker, auxiliary route markers carrying word legends (except the Junction marker) shall have a standard size of 21 inches by 9 inches. The Junction marker and those carrying arrow symbols shall have a standard size of 21 inches by 15 inches. With Route Markers of other sizes the auxiliary markers should be suitably reduced or enlarged in size.

If desired, the Route Marker and any auxiliaries used with it may be combined on a single panel of the same overall height as the assembly.

Route Marker auxiliaries shall be of the same color as the Route Markers they accompany, generally with black legend on a white background.

Interstate.—For the Interstate System it is prescribed that Junction, Directional, and Cardinal Direction markers used with the Interstate Route Marker shall have white legend on a blue background. Directional Arrows used in Trailblazer assemblies, however, shall have a black symbol on a white background.

1D-12 Confirming and Reassurance Route Markers

Confirming Route Markers, without auxiliary Junction, Turn, or Directional markers, shall be erected just beyond intersections where the traveler might be in doubt as to his choice of route. In rural districts they should be placed not less than 25 feet nor more than 100 feet beyond the far roadway line of the intersected highway. In urban areas these distances should be 10 feet and 50 feet respectively. At expressway interchanges a Confirming Route Marker should be placed on the through roadway just beyond an exit gore, unless the through route is clearly designated on a sign at the gore. At an entrance ramp, where a driver has already proceeded too far to change his course, a Confirming Route Marker is not necessary, but there should be a Reassurance Route Marker placed within a reasonable distance beyond the interchange.

The application of Confirming Route Markers is illustrated in figures 1-6 to 1-8.

Reassurance Markers, also without auxiliary Junction, Turn, or Directional markers, shall be erected between intersections as required and just beyond the built-up area of any incorporated city or town.

Route Markers for either confirming or reassurance purposes should be spaced at such intervals as will keep the traveler sure of his route. In congested urban areas, the proper location of Route Markers is extremely important because it is very easy for the traveler to become confused and lose his route. Extreme care should be taken to erect the markers where they can be seen easily. If necessary, they should be located on the far side of every intersection along a numbered route, or so that at all times a Route Marker is plainly visible ahead.

In cases where a route designation incorporates a cardinal direction or constitutes an alternative route the Confirming or Reassurance Route Marker must be accompanied by the appropriate auxiliary markers. Only in such cases may Route Marker auxiliaries be used with any but the square Assembly Route Marker.

Where two or more routes follow the same road, Route Markers for all of the routes shall be erected on the same support. If different classes of numbered routes are shown, the Interstate, U.S. and State markers should be mounted in that order from the top of the grouping in a vertical arrangement or from the left in a horizontal arrangement. Subject to this order of precedence, Route Markers should be in numerical order from top to bottom or from left to right.

Confirming or Reassurance Route Markers shall be erected in accordance with the general standards for sign erection (secs. 1A-22, 23).

Interstate.—On the Interstate System it is provided that a Confirmatory Route Marker shall be used 500 feet beyond the end of the acceleration lane at an entrance to an Interstate highway and at relatively long intervals along a route.

1D-13 Junction Marker (M2-1)

When large expressway-type directional signs are not used in advance of an intersection, the junction of two marked routes shall be indicated by a Junction assembly, consisting of a Junction marker mounted immediately above an Assembly Route Marker (M1-2). The Junction marker shall carry the abbreviated legend JCT. It shall have a standard size of 21 inches by 15 inches.



M2-1
21" x 15"

A Junction assembly shall be erected in advance of every intersection where a marked route is intersected or joined by another marked route (fig. 1-6). The Route Marker shall carry the number of the intersected or joined route. Where two or more routes are to be indicated, a separate Junction assembly shall be used for each route and all assemblies grouped in a single mounting, or a combination Junction sign (sec. 1D-14) shall be used. Two assemblies should preferably be mounted side by side rather than one above the other.

Where there are several assemblies, they should be arranged, so far as practicable, in the following manner:

1. The assembly for a route intersecting from the left should be to the left of a horizontal grouping, or in the middle of a vertical grouping.

2. The assembly for a route intersecting from both left and right, or for a route proceeding only straight ahead out of the intersection, should be in the middle of a horizontal grouping, or at the top of a vertical grouping.

3. The assembly for a route intersecting from the right should be to the right of a horizontal grouping, or at the bottom of a vertical grouping.

The Junction assembly shall be mounted in accordance with the general specifications for highway signs (secs. 1A-22, 23), with the lowest unit in the assembly at the height prescribed for single signs.

In rural districts the Junction assembly shall be erected not less than 200 feet in advance of the intersection, on the right-hand side of the roadway and facing approaching traffic. The assembly thus serves as an intersection warning as well as a guide sign.

In residence and business districts the Junction assembly shall be erected approximately midway in the block preceding the intersection, but generally not more than 500 feet in advance of the intersection.

Interstate.—For the Interstate System, it is prescribed that the Junction assembly on intersecting highways and approach roads shall be a standard 24-inch Interstate Route Marker with an 18-inch by 9-inch Junction sign having white legend on a blue background.



M2-2
48" x 36"

1D-14 Combination Junction Sign (M2-2)

As an alternative to the standard Junction assembly in residence or business districts, where more than one route is to be intersected or joined, a rectangular sign may be used carrying the word JUNCTION above the route numbers, each of which is identified as a U.S. or State number by an outline symbol as in the Assembly Route Marker (fig. 1-6). The sign shall have a black background, with white lettering for the word JUNCTION and white Route Marker symbols carrying black numerals. The size of the sign will depend on the number of routes involved, and the numerals should be large enough for clear legibility, comparable with those in the individual Assembly Route Markers. The combination Junction sign shall not be used at a junction with an Interstate Route.

The combination Junction sign shall be located and erected according to the specifications for Junction assemblies (sec. 1D-13).

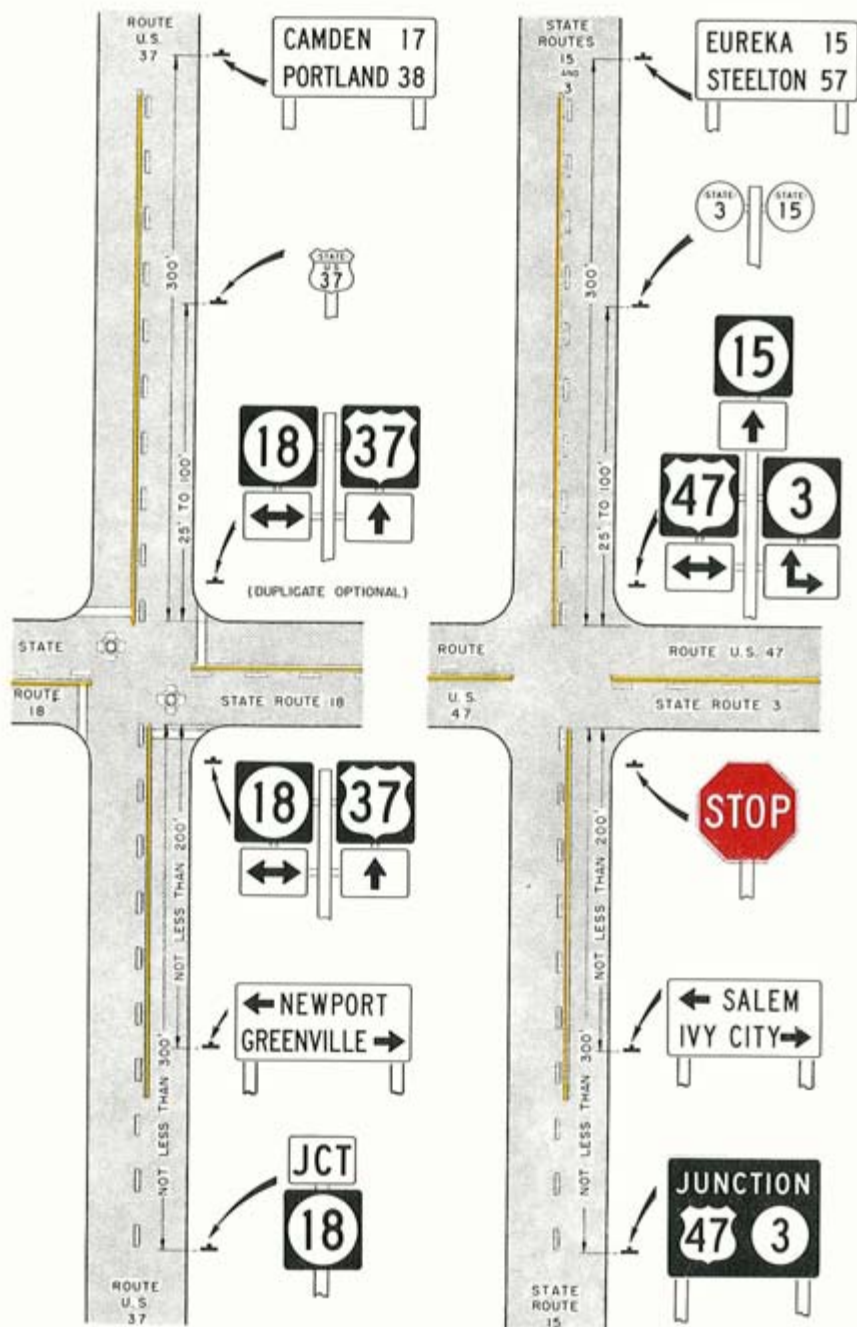


Figure 1-6. Typical route markings at intersections (for one direction of travel only).

1D-15 Advance Turn Arrow (M3-1, M3-2)

The Advance Turn Arrow shall be an auxiliary marker carrying a right or left arrow, the shaft of which is bent at a right angle (M3-1) or at a 45-degree angle (M3-2). It shall have a standard size of 21 inches by 15 inches.



M3-1
21" x 15"



M3-2
21" x 15"

The Advance Turn Arrow shall be placed directly under an Assembly Route Marker (M1-2) to form a Route Turn assembly. Where large expressway-type directional signs are not used, a Route Turn assembly shall be used on a numbered route in advance of an intersection to indicate a turn or change in direction of that route at the intersection.

If several overlapping routes turn at an intersection, each shall be marked, in advance of the intersection, with a separate Route Turn assembly, whether they turn in the same or in different directions. Where one or more routes turn while one or more proceed straight through, the routes that turn shall be marked with Route Turn assemblies, using the appropriate right or left advance turn arrows, while the straight-through routes are indicated by similar assemblies using the vertical directional arrow (M4-3, sec. 1D-16).

Route Turn assemblies may be omitted where the character of the roadway clearly indicates the course of the route or routes.

Route Turn assemblies for all routes should be grouped in a single mounting. Where there are routes turning in opposite directions, Route Turn assemblies for routes turning left should be mounted to the left of the group of assemblies, and those for right-turning routes to the right. If straight-through assemblies are used, the right- and left-turn assemblies should be to the right and left of them respectively. In a vertical arrangement the straight-through assemblies should be at the top, followed by left- and right-turn assemblies respectively.

The Route Turn assembly shall be erected in rural districts not less than 200 feet in advance of the turn, and in residence and business districts not more than 500 feet in advance, facing traffic approaching the intersection.

It is suggested that in congested districts the assemblies be duplicated, spaced at appropriate intervals. The assemblies should be located so that they will not turn traffic into an alley or secondary street in advance of the proper turn.

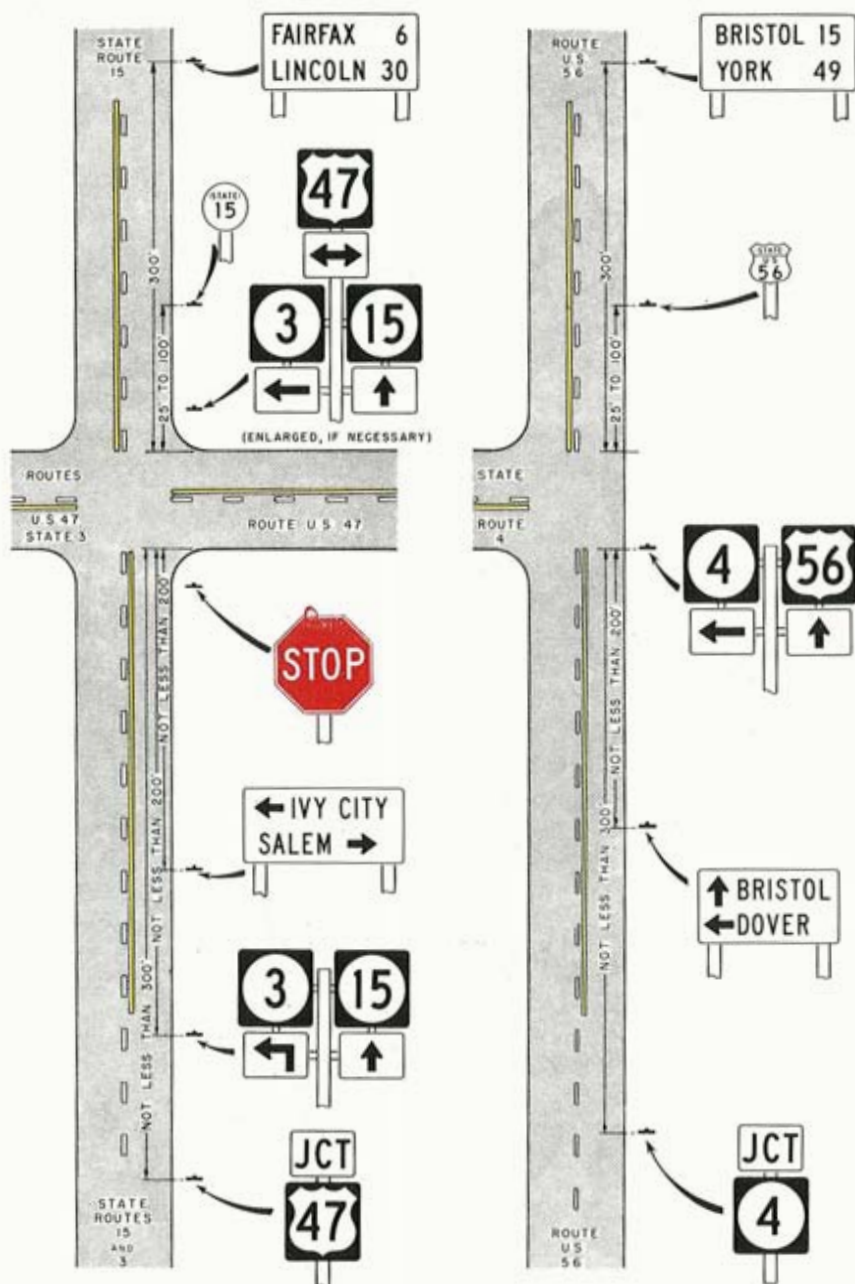


Figure 1-7. Typical route markings at intersections (for one direction of travel only).

The Route Turn assembly shall be mounted in accordance with the general specifications for highway signs (secs. 1A-22, 23), with the lowest unit in the assembly at the height prescribed for single signs.

Figures 1-7 and 1-8 show typical applications of Route Turn assemblies.

1D-16 Directional Arrow (M4-1 to M4-7)

The Directional Arrow (M4-1 to 7) shall be an auxiliary marker carrying a single- or a double-headed arrow pointing in the general direction or directions in which a designated route may be followed. It shall have a standard size of 21 inches by 15 inches.



M4-1
21" x 15"



M4-2
21" x 15"



M4-3
21" x 15"



M4-4
21" x 15"



M4-5
21" x 15"



M4-6
21" x 15"



M4-7
21" x 15"

Interstate.—Along the Interstate System it is prescribed that the Directional Arrow used on intersecting highways and approach roads shall be 18 inches by 9 inches in size, used with a standard 24-inch Interstate Route Marker. It shall have a white symbol on blue background.

Where large expressway-type signs are not used, a Directional Arrow shall be mounted directly below a square Assembly Route Marker (M1-2) to form a Directional assembly, used at intersections to show (1) the direction of a route turn or (2) the direction or directions of an intersected route as described below:

1. A Directional assembly displaying the number of the turning route shall be used to confirm a turn or change in direction of a route at an intersection (indicated in advance by a Route Turn assembly, as prescribed in section 1D-15). A separate assembly shall be used for each turning route.

Only the single arrow (M4-1, M4-2) pointed in the direction of the turn, can be used in such an assembly (figs. 1-7, 8).

2. A Directional assembly, with the number of the intersected route and proper arrow, shall also be used to confirm a junction of two or more numbered routes (indicated in advance by a June-

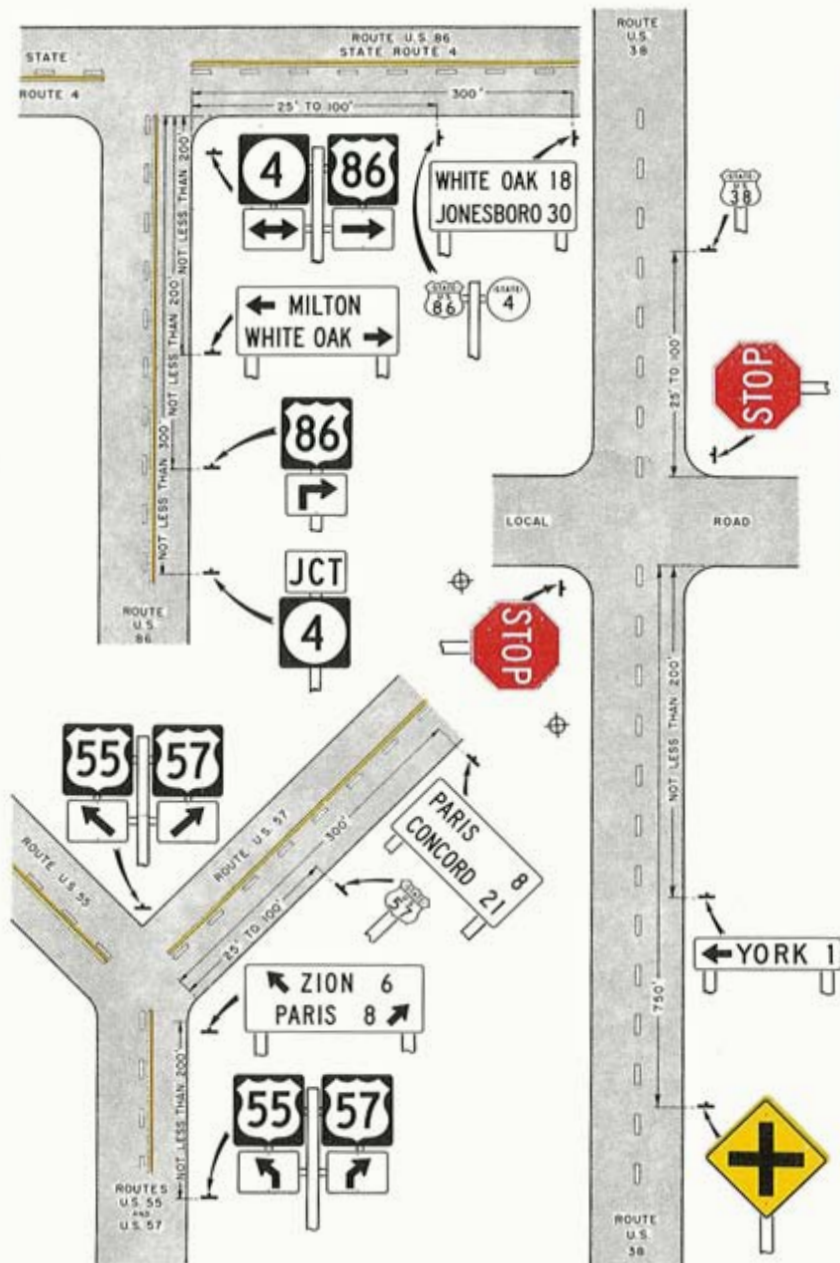


Figure 1-8. Typical route markings at intersections (for one direction of travel only).

tion assembly as prescribed in section 1D-13), and to indicate the direction or directions of the intersected route (figs. 1-6, 7, and 8). When two or more numbered routes are intersected, a separate Directional assembly shall be used to mark each route.

When an intersected route begins at the intersection, a single-headed directional arrow shall be used (fig. 1-7). For a route crossed or entered at the intersection a double arrow shall be used, pointing at appropriate angles to left or right or ahead (figs. 1-6, 7, and 8). Optionally, a separate Directional assembly may be used for each direction of an intersected route, with an appropriate Cardinal Direction marker (sec. 1D-25).

Where one or more routes turn or are intersected and one or more routes continue straight through, the straight-through route shall be marked by a Directional assembly using the vertical arrow (M4-3). A Directional assembly with vertical arrow, however, should not be used at any intersection alone, in the absence of other assemblies indicating right or left turns. The Confirming Marker just beyond the intersection (sec. 1D-12) provides adequate marking for a route passing straight through, where there are no turning or intersected routes.

All Directional assemblies, whether for route turns or for intersected routes, facing traffic entering an intersection from a single direction shall be on a single mounting. Where more than one route turns or is intersected, the assemblies should be arranged as follows:

1. In a horizontal grouping the single arrows pointing to left or right should be to the extreme left or right of the arrangement, respectively. A vertical arrow should be at or near the center of the group, with the double arrows on either side in such a manner as will best emphasize their directional indications.
2. In a vertical grouping the vertical arrow should be at the top, followed by other single arrows pointing to left and right (in that order) and then by the straight and the bent double arrows.

In some instances it will be advantageous to give emphasis to a particular Directional assembly by giving it a more conspicuous position in a grouping than it would have in one of the above arrangements.

1D-17 Location of Directional Assemblies

A Directional assembly or group of Directional assemblies shall normally be located on the near right-hand corner of the intersection. At major intersections it is often desirable to install

additional assemblies on the far right-hand or left-hand corner to confirm the near-side assemblies.

It is more important that guide signs be readable at the right time and place than that they be located with absolute uniformity. When the near-corner position is not practical for directional assemblies, the far right-hand corner is the preferred alternative, with oversize signs if necessary for legibility. Similarly, if it is found advantageous to place a Directional assembly in advance of the intersection, an additional assembly should be mounted on the far right-hand corner. The standard near-corner location, however, places the Directional assembly where it can be read at close range, without interference from cross traffic, and this should be held to in the absence of compelling reasons to the contrary.

The Directional assembly shall be mounted in accordance with the general specifications for highway signs (secs. 1A-22, 23), with the lowest unit in the assembly at the height prescribed for single signs. Care should be taken that groups of Directional assemblies in a single mounting will not block the view in any direction at an intersection.

At complex intersections or interchanges, with connecting ramps or one-way roadways, the effective location of directional markings is often exceedingly difficult to achieve. It may be best under some circumstances to separate the Directional assemblies so that those indicating a turn will be on the near side of the turn and those for straight-ahead traffic on the far side. However, no rules are here prescribed for directional signs at such intersections, as each must be studied independently and the best route marking be worked out by observation and experiment. The use of expressway-type signing (secs. 1D-33 to 39) may be warranted. It must be remembered that at complex interchanges the motorist cannot depend on his sense of direction to tell him whether to turn right or left, and that he is wholly dependent on the signs he reads. It is absolutely necessary, therefore, that the directional guidance be clear and unmistakable.

1D-18 Markers for Alternative Routes (M5-1 to M5-7)

It is often necessary to relocate a numbered route temporarily, or to show an alternative routing for a special purpose. An auxiliary plate carrying the legend **TEMPORARY, ALTERNATE (or ALT), BY-PASS (or RELIEF), BUSINESS, or DETOUR** shall be mounted immediately above a Route Marker to designate such a route. When used with an Assembly Route Marker it shall

have a standard size of 21 inches by 9 inches (sec. 1D-11). The combination shall be used as a Confirming or Reassurance Route Marker or as part of a Junction, Turn, or Directional assembly, and shall be located and erected in the same manner.

The designation of Alternate, By-Pass, or Business U.S. routes is in accordance with the established policy of the American Association of State Highway Officials.⁹ No route may be so designated and marked without the approval of the Executive Committee of the Association.

1D-19 Temporary Marker (M5-1)

The TEMPORARY marker shall be used as specified in section 1D-18 to indicate either:

1. A route temporarily designated but not intended as a permanent part of a regularly numbered route, or
2. A temporary detour from an established route, due to emergency or major reconstruction.

Where it is planned to relocate a route at a later date, use of the "temporary" designation will often help to avoid future misunderstanding and ill feeling. On the other hand, the use of "temporary" instead of "detour" avoids the suggestion of poor road that is associated in the public mind with the latter term. The temporary route may be another U.S. or State numbered route, a county or township road, or a city street.

Temporary markers shall be promptly removed when the temporary route is abandoned.

TEMPORARY

M5-1
21" x 9"

ALTERNATE

M5-2
21" x 9"

1D-20 Alternate Marker (M5-2)

The ALTERNATE (or ALT) marker shall be used as specified in section 1D-18 to indicate an officially designated alternate routing of a numbered route between two points on that route.

1D-21 By-Pass Marker (M5-3)

The BY-PASS marker (M5-3) shall be used as specified in section 1D-18 to designate a route that branches from the regular

⁹ Purpose and Policy in the Establishment and Development of United States Numbered Highways, 1959, American Association of State Highway Officials, 917 National Press Building, Washington 4, D.C.

numbered route through a city, by-passes a part of the city or congested area, and rejoins the regular numbered route beyond the city. Where the alternative route is intended to divert part of the traffic from a heavily traveled numbered route, it may be designated by a RELIEF route marker (M5-4).

BY-PASS

M5-3
21" x 9"

RELIEF

M5-4
21" x 9"

BUSINESS

M5-5
21" x 9"

1D-22 Business Route Marker (M5-5)

The BUSINESS route marker shall be used as specified in section 1D-18 to designate an auxiliary route that branches from a regular numbered route through a city to carry traffic through the business portion of the city.

Interstate.—The marking of certain business spur or loop routes connecting with the Interstate System is by means of special Route Markers (sec. 1D-10).

1D-23 Detour Marker (M5-6)

The DETOUR marker shall be used as specified in section 1D-18 to indicate an emergency routing of traffic due to a temporary closing or blocking of the regularly marked route. Conditions calling for a detour include road reconstruction or major maintenance work, a closed bridge, high water, or similar circumstance that makes the regular route impassable or inconvenient for travel. The Detour assembly should be located and erected in general accordance with the specifications for regular Route Markers. However, since detours frequently necessitate the use of unimproved or poorly defined roads, there is greater likelihood that motorists following the route may become confused. Extreme care should be exercised to see that Detour assemblies are located and erected as conspicuously as possible and at short intervals as needed.

The use of the Temporary marker (M5-1) in place of the Detour marker is optional. "Temporary" does not carry the suggestion of inferior roads often associated with the term "detour."

A supply of Detour or Temporary markers should be kept on hand in all highway districts for prompt use as needed. When

the regular route is reopened, all Detour or Temporary markers should be removed immediately.



M5-6
21" x 9"



M5-7
24" x 9"

1D-24 Detour Arrow Sign (M5-7)

An alternative method for marking detours, particularly in emergencies, is the use of the Detour Arrow sign. This is a rectangular sign of a standard size of 24 inches by 9 inches having a white arrow on a black background and the word **DETOUR** centered on the arrow. It should be made in rights and lefts so it can be mounted to point in either direction.

This sign, in emergencies and where, over relatively short distances, it is not necessary to show route numbers, may be posted in the most expedient manner, and as frequently as necessary to guide traffic along the detour and back to its desired route.

In a greatly enlarged size, this sign is prescribed for use on barricades in the roadway where a road is closed for construction or major maintenance operations (sec. 5B-39).

1D-25 Cardinal Direction Marker (M6-1)

The Cardinal Direction marker, carrying the word **EAST**, **WEST**, **NORTH**, or **SOUTH**, may be mounted directly above a Route Marker to indicate the general direction of the route. It may be used where motorists in transferring from one route to another might be confused as to the direction in which the intersected route would take them. It may also be used elsewhere for reassurance.



M6-1
21" x 9"

The Cardinal Direction marker for use with an Assembly Route Marker shall have a standard size of 21 inches by 9 inches (sec. 1D-11).

Interstate.—On the Interstate System and approaches thereto, the Cardinal Direction marker, if used with an Interstate Route Marker, shall be blue, with white legend. It shall have a size of 18 inches by 9 inches if used with

a 24-inch Route Marker, and 30 inches by 15 inches with a 36-inch Route Marker.

The Cardinal Direction marker only supplements a Route Marker in any application and does not affect its location or manner of erection.

ID-26 Trailblazers

Some traffic authorities have found it desirable to provide directional guidance to expressways, bridges, or similar special highway facilities from other highways in the vicinity. This is accomplished by means of "Trailblazers" erected at strategic locations, usually along major urban thoroughfares, to indicate the direction to the nearest or most convenient point of access. Such Trailblazers should be an assembly consisting of the following:

1. An 18-inch by 12-inch plate having the word **TO** in 6-inch black letters on a white background (M7-1). This plate is desirable to make it clear that the traveler is not already on the facility referred to.

2. Just below it, if needed, a Cardinal Direction marker (sec. 1D-25).

3. A Route Marker or other symbol, not exceeding 24 inches in its largest dimension.

4. A single Directional Arrow of a size proportionate to the Route Marker or symbol (sec. 1D-16).

If desired these several components may be combined on a single panel.



M7-1
18" x 12"



Trailblazer
assembly

The Cardinal Direction marker is often needed where different interchanges will be used for access to the indicated facility, depending on the direction in which it is desired to travel after reaching it.

Interstate.—For the Interstate System it is prescribed that the Trailblazer assembly shall consist of an 18-inch Interstate Route Marker, a white panel with the word **TO** in 6-inch capital letters, a Cardinal Direction marker if needed, and a standard Directional Arrow in black

on a white plate, arranged in the vertical order described above, separately or incorporated in a single panel.

1D-27 Destination and Distance Signs

In addition to guidance by route numbers it is necessary to supply to the traveler information concerning the destinations that can be reached by way of numbered or unnumbered routes. This is done by means of Destination and Distance signs.

These signs shall have black legend on a white background, or white legend on a black or green background (sec. 1D-3). A dark background is preferable for overhead signs. The white background or white letters shall be reflectorized while reflectorization of the green background is optional. On any particular highway, color and reflectorization should be consistently uniform.

A further special characteristic of these signs is that destination names may be in lower-case letters with, of course, initial capitals.

For expressways, a more or less standardized arrangement of directional signs has been developed, as described in sections 1D-34 to 39.



D1
Variable size



D1
Variable size

1D-28 Destination Sign (D1)

Except on expressways, for which special interchange signing is prescribed (secs. 1D-33 to 39), the Destination sign shall be a horizontal rectangle carrying the name of a city, village, or other objective, and a directional arrow. The mileage to the place named may also be shown. If several destinations are to be shown at a single point, the several names may be placed on a single panel with an arrow (and the mileage, if desired) for each name. If more than one destination lies in the same direction, a single arrow may be used for such a group of destinations, but in any case adequate separation should be made between any destination or group of destinations in one direction and those in other directions, by suitable design of the arrows, spacing of the lines of legend, heavy lines entirely across the panel, or separate panels.

An arrow pointing to the right shall be at the extreme right of the sign, and an arrow pointing left or vertically shall be at the extreme left, unless there is only one direction to turn, in which case the arrow may be at the bottom of the sign. The mileage figures, if used, shall follow after the destination name. Horizontal or sloping arrows should be of sufficient length to be clearly distinguishable from the vertical arrow. As a general rule, the directional arrows should be horizontal or vertical, but at an irregular intersection a sloping arrow will sometimes convey a clearer indication of the direction to be followed.

The size of the lettering for U.S. and State numbered routes and other major routes shall be no less than that specified in section ID-6. In some instances the names of major destinations may be in larger letters than those of minor destinations on the same sign. If, however, several individual name panels are assembled into a group, all panels in the assembly should be of the same length.

Destination signs are generally warranted:

1. At the intersections of U.S. or State numbered routes with Interstate, U.S. or State numbered routes.
2. At points where they serve to direct traffic from U.S. or State numbered routes to the business section of towns, or to other destinations reached by unnumbered routes.

Preferably not more than two or three names should be used in combination on one or more signs. As a general rule, the next important city or point of interest lying straight ahead should be at the top of the sign or assembly, and below it the next important destinations to the left and to the right, in that order. In the case of overlapping routes, there should be shown only one destination in each direction on each route. If there is more than one destination shown in any direction, the name of the nearest city or town should appear above that of any farther away.

Placing the vertical arrow at the top is not only consistent with the recommended arrangement for Route Marker assemblies, but also has the advantage that the arrow definitely points away from the other names shown. The sequence of left and right arrows also is like that specified for Route Marker assemblies, and gives priority position to the left turn, for which the driver must properly position himself in the center lane.

The choice of destination names must be somewhat flexible. The destination shown for each direction should ordinarily be the next county seat or the next principal city, rather than a more distant destination.

1D-29 Location of Destination Signs

In rural districts Destination signs should generally be located not less than 200 feet nor more than 300 feet in advance of the intersection, and following any Junction or Route Turn assemblies that may be required. In urban areas somewhat shorter distances may be justified. The motorist must have an opportunity to make up his mind as to the direction he wishes to go before he reaches the intersection, so he can get into the proper lane for turning if necessary. Supplementary or confirmatory Destination signs may be erected on the far right-hand corner of the intersection, or, at a T or Y intersection, on the far side of the intersection directly ahead of approaching traffic.

Height and lateral placement of Destination signs shall be in accordance with the general standards for sign erection (secs. 1A-22, 23).

Figures 1-6 to 1-8 show the use of Destination signs at rural intersections.

1D-30 Distance Sign (D2)

The Distance sign shall be a horizontal rectangle of a size appropriate to the required legend, carrying the names of not more than three, and ordinarily of only two incorporated cities, villages, or towns, and the mileages (generally to the nearest mile) to the centers of those places.



D2
Variable size

As a general rule the top name should be that of the next place on the route having a post office, railroad station, or other significant geographical identity. The lowermost name should be that of the major destination of the route, or the city in which the greater portion of the through traffic is interested. If a third name is included it should be that of the next county seat, important city, or important route junction.

The lowermost name should remain the same on successive signs throughout the length of the route until that destination is reached. There are circumstances, however, under which more than one distant point may properly be designated, as, for example, where the route divides at some distance ahead to serve two destinations of similar importance. If these two destinations

cannot appear on the same sign, some alternation of the two names may be justified. On a route continuing into another State, the name of a city in the adjacent State may be shown.

On urban expressways where interchanges are closely spaced, the Distance sign may show, instead of place names, the route or destination designations for the next two or three exits, with mileages thereto, normally in fractions of a mile.

Since this sign is for information only, and does not call for any direct response, it is permissible to use 8-inch capitals or 6-inch lower-case letters in place of the minimum of 10-inch capitals or 8-inch lower-case letters prescribed for expressway guide signs in section 1D-6.

1D-31 Location of Distance Signs

Distance signs shall be erected on important routes leaving municipalities, and just beyond intersections of numbered routes in rural districts, or at intervals of approximately 10 miles along the route. They should not ordinarily be used on any but major routes.

Distance signs shall be placed on the right-hand side of the road, facing traffic leaving the municipality, approximately 500 feet outside of the municipal limits, or at the edge of the built-up district if it extends beyond the corporation limits. Where overlapping routes separate a short distance from the corporation limits, the Distance sign should be omitted at the corporation limits and should be erected 300 feet beyond the junction of the two routes.

Where, just outside of an incorporated municipality, two routes are concurrent and continue concurrent to the next incorporated municipality, the top name on the sign placed at such a point should be that of the place where the routes separate; the lower name should be that of the city in which the greater part of the through traffic is interested.

On expressways the Distance sign shall be erected at the roadside within half a mile beyond the last entering roadway at each interchange, and at random intervals as desired for reassurance. In urban areas where interchanges are closely spaced the sign need not be placed beyond every interchange.

Interstate.—Standards for the Interstate System prescribe the display of a Distance (or Mileage) sign 2,500 feet beyond the end of an interchange acceleration lane, where space between interchanges permits. The sign is to carry not more than two destinations, the next community or the next intersected highway or interchange on the route, followed by the next point of general in-

terest, together with the corresponding mileage information. The legend shall be in 10-inch lower-case letters, with initial capitals and numerals 13.3 inches high.

Distance signs shall be erected in accordance with the general standards for sign erection (secs. 1A-22, 23).

Figures 1-6 to 1-8 show the use of Distance signs at rural intersections.

1D-32 Street Name Sign (D3)

Street Name signs should be erected and maintained by the municipality, and should be placed at all street intersections regardless of other route marking that may be present. Colors should be one of the combinations prescribed for Destination and Distance signs (sec. 1D-27), or other combination giving good contrast and legibility.

E MAIN ST

D3
Variable size

The street name shall appear in capital lettering at least 3 inches high, and, on more important streets, not less than 4 inches high. Supplementary lettering to indicate the type of street (e.g., Street, Avenue, Road, etc.) or section of city (e.g., N.W.) may be in smaller lettering, at least 2 inches high. Conventional abbreviations are acceptable except for the street name itself.

The Street Name sign should preferably be reflectorized or illuminated.

In business districts Street Name signs shall be placed at least on diagonally opposite corners so that they will be on the far right-hand side of the intersection for traffic on the more important street. Signs naming both streets should be erected at each location. They should be mounted with their faces parallel to the streets they name, as close to the corner as practicable with the nearest part of each sign not less than 1 foot, and preferably 2 feet, back from both curb lines. They should be not less than 7 feet above the top of the curb, either at the same height or with one immediately above the other in a crossed position.

In residence districts Street Name signs should be mounted as in business districts, but a single location at each intersection will ordinarily suffice on all but the more important thoroughfares.

Care should be taken in all cases to insure that the signs are placed where they can easily be seen by motorists and pedestrians.

ID-33 Expressway Directional Signs

The special design of expressways, the high speed and volume of the traffic using them, and the relatively large proportion of non-local traffic in need of guidance, all call for directional signs of special design and application. The following sections, accordingly, deal specifically with expressway directional signs in relation to interchanges as they constitute a more or less distinct category of signs. These signs, in proper sequence, combine the functions of separate Route Markers and Destination signs, as above specified for other highways, to give all necessary directional guidance through interchanges that are often of complex design.

ID-34 Interchange Sign Requirements

An interchange on an expressway usually connects with a numbered or named highway or street. In most cases, also, that intersected highway will lead to some destination or destinations of interest, in one or both directions. As a general rule, therefore, both route numbers and destinations must be shown on interchange signs. In urban areas a street name may be all that can be shown, without reference to any particular destination. The designation of interchanges by name may be advantageous under some circumstances, but generally an interchange can be identified by the name or number of the intersected highway or the chief destination thereon. A special interchange designation only adds to the legend that must appear on the interchange signs. Numbering of interchanges is subject to the further disadvantage that it assumes definite termini for an expressway and a fixed number of interchanges.

On expressway guide signs the emphasis should always be placed on the information that will be most helpful to the stranger unfamiliar with the route.

ID-35 Expressway Interchange Signs

Where interchanges are relatively far apart it is desirable and necessary to give long-range advance notice of each exit and the routes or destinations served by it. For each major interchange there should be a minimum of three guide signs (or assemblies of guide signs) and a maximum of five, not including any duplicate signs placed on the left side of the roadway to supplement the regular signs. The following sections describe (in reverse order, counting outward from the interchange toward the approach traffic) the signs that should appear at the interchange and in advance of it.

1D-36 Gore Signs (E1-1 to 4)

At the point of exit at an interchange, in addition to any advance signs, it is necessary to have a final guide sign to mark the diverging roadway. This sign should be located in the gore between the diverging roadways, as near to the point of divergence as necessary clearances will permit, or as an overhead sign above the roadway or roadways at the actual point of divergence.



E1-1
Variable size

When adequate advance directional signs are in place, and there is only a single exit at an interchange (for a given direction of approach traffic), it may be sufficient to mark the diverging ramp by a Gore sign carrying the single word EXIT and an arrow (E1-1). Where it is desirable to provide confirming guidance at the gore, and, in any case, where there are two exit ramps at the interchange, the Gore sign should show, for diverging traffic and for through traffic, not more than two destinations served by each of the roadways or lanes, with applicable route numbers or names, and directional arrows. Under some circumstances the route number or name may be the only significant information that can be shown, particularly where interchanges are at street intersections serving local destinations within a metropolitan area. In urban areas, too, it may be unnecessary to repeat at every interchange the destination of the expressway itself.

Interstate.—Standards for the Interstate System prescribe that the Gore sign at an interchange having a single exit shall carry only the word EXIT in 12-inch capital letters, with an upward-pointing slanting arrow. At minor interchanges 8-inch letters are permissible. However, where the distance between interchanges is short and it is necessary to place advance signing in the immediate vicinity of the previous interchange, an overhead sign installation may be used to carry not only a Gore sign with exit information and arrow but also the exit guide sign for the next interchange.

Where there are two exit ramps at an interchange, it is necessary to provide directional information at both gores, in such a

manner as to distinguish the directions and destinations served by the two exits. In this case there should be, at the first gore, one sign showing the route and destination served by the first exit ramp, with a directional arrow (typically, E1-2), together with another sign showing the corresponding information for the second exit, with an arrow pointing toward the through lanes and, if desired, an indication of the distance to the second exit (typically, as an overhead sign, E1-3). The two signs, if at the roadside or within the gore, may be combined on a single plate, but if overhead, they should be mounted side by side over the roadways to which they apply.



At the second gore there should be a sign giving directions for the second exit, similar to that for the exit ramp at the first gore.

Where there are two exits it is necessary, as a rule, to accompany the route number or name of the intersected route with a cardinal direction indication (NORTH or SOUTH, for example) showing the general direction in which traffic will proceed on the designated route by way of the ramp so marked.

If two directions are shown, one above the other, on a single sign, a heavy horizontal line should be used to separate the destinations and their arrows. Two separate signs, one above the other, may accomplish the same purpose even better.

As a general rule only one destination in each direction should be designated. A secondary destination may be shown in letters somewhat smaller than the minimum size prescribed for the principal message.

Interstate.—Standards for the Interstate System prescribe that the Gore destination sign at the first exit of an interchange with two exit ramps shall be overhead. The sign over the exit roadway carries the route number or name, the cardinal direction, and the one destination, with an upward-sloping arrow pointing in the direction of the exit traffic movement (E1-2). Over the through lane on the side from which the second exit ramp takes off there is a sign carrying similar directional informa-

tion for the second exit, but with a vertically downward-pointing arrow and the distance to the next exit (E1-3). Over the remaining through lane or lanes a sign reading THRU TRAFFIC with a vertically downward-pointing arrow is used (E1-4). Where the distance between interchanges is short, however, this last sign may be replaced by an advance exit guide sign (sec. 1D-38) for the next interchange. At the second exit a ground or overhead sign is placed in the gore, similar to that over the exit ramp at the first gore. The THRU TRAFFIC sign is in 18-inch capital letters. The other Gore signs carry route numbers in 12-inch numerals and destinations or street names in 12-inch lowercase letters with 16-inch initial capitals.

The above standard for the Interstate System is recommended for use on high-type expressways generally, to the extent that such expressways are built to Interstate standards.

1D-37 Exit Direction Sign (E2)

At or in advance of the gore, generally at the beginning of the deceleration lane at the exit, a directional sign should be placed to indicate the proper lane to be taken by drivers who intend to leave the expressway at that exit (typically, E2).



E2
Variable size

This sign should show (1) the number or name of the route with which the ramp connects, (2) the cardinal direction in which that route leads, if the ramp gives access to only one of two possible directions for the intersected route, (3) the name or names of not more than two principal destinations on that route, and (4) a directional arrow, or a word message such as KEEP RIGHT (or LEFT) or RIGHT (or LEFT) LANE, in lettering smaller than that of the principal legend. If there are exits on both sides of the roadway, the sign should so indicate, but it should not normally give directions for the through lanes of the expressway. The word message in place of the arrow is to be preferred where the actual course of the exit cannot be seen clearly by the driver

as he approaches, or where the sign must be placed in advance of a short deceleration lane in order not to be too close to the Gore signs, in which case the sign should be located one-fourth to one-half mile in advance of the gore. With an arrow the sign should always be located so that the symbol will be readily associated with the departure point and alinement of the exit ramp.

Where the exit ramp serves both directions on the intersected highway, two destinations will ordinarily be shown. On the other hand, as in metropolitan areas, there may be interchanges where no specific destinations can be indicated.

Where there is an adequate overhead sign at the gore giving the needed directional information, and where the distance between interchanges is short or there are at least two advance exit guide signs, the Exit Direction sign may be omitted.

Where, as at a cloverleaf interchange, there are two exit roadways both diverging to the right, the Exit Direction sign should show directional information only for the first exit. The Gore sign at the first exit will normally serve as the Exit Direction sign for the second exit, but if there is sufficient distance for the installation of a second Exit Direction sign between the first and the second exits it should be used.

Interstate.—Standards for the Interstate System prescribe the use of the Exit Direction sign, with arrow or legend RIGHT (or LEFT) LANE, at the beginning of or in advance of the deceleration lane, as described above. The route number is in 12-inch numerals, the destination name or names in 12-inch lower-case letters with 16-inch capitals, and the words RIGHT LANE in 12-inch capitals. When at least two advance exit guide signs are used and the Gore sign is an overhead installation, the Exit Direction sign should usually be omitted.

ID-38 1-Mile Advance Sign (E3-1)

At approximately 1 mile from an interchange an advance sign shall be placed, showing the principal destination or destinations served by the interchange, and the connecting route number or street name, or such of this information as is significant, with the legend EXIT 1 MILE, or the approximate distance if less than one mile (typically, E3-1). The word EXIT is necessary, as the named destinations lie at some distance from the exit.

Two destinations (particularly if lying in different directions) must often be shown, but not more than two should be listed, as a rule. If, as at a cloverleaf interchange, there are two separate

exits for different directions on the intersected highway, this sign should show the principal destination for each of the exits, and the sign should read EXITS 1 MILE.



E3-1
Variable size

This sign shall be erected on the right-hand side of the roadway, with a duplicate installation on the left, if warranted for better visibility. Under special circumstances an overhead sign may be justified (sec. 1A-21).

The 1-Mile Advance sign is perhaps the most important of the interchange guide signs. It should be as large as necessary to command notice and provide ample legibility.

Interstate.—Standards for the Interstate System prescribe the use of this sign in advance of every interchange, normally at the distance of 1 mile. The “desirable” and “minimum” sizes of lettering are specified in detail for major, intermediate, and minor interchanges respectively, ranging from 18-inch capitals and lower-case letters (the latter with 24-inch initial capitals) for the more important legend at major interchanges to 10-inch and 8-inch letters for parts of the legend at minor interchanges. At minor interchanges the sign is placed one-quarter to one-half mile from the interchange, and carries the legend RIGHT LANE instead of EXIT 1 MILE.

For high-type expressways it is suggested, as a minimum standard for the 1-Mile Advance sign, that the route numbers and cardinal directions be 12 inches high, the place names be in 12-inch lower-case letters with 16-inch initial capitals, and the words EXIT and MILE be in 8-inch capitals with a 12-inch numeral. These letter sizes are a little below those specified for intermediate interchanges on the Interstate System. In urban areas, where interchanges are closely spaced or where speeds are relatively low, and where visibility of signs is not interfered with by ex-

traneous lights or commercial signs, a smaller lettering may be adequate.

When the distance between interchanges is less than 1 mile, the Gore sign at the preceding interchange (provided that it shows the necessary route, destination, and directional information) may be construed to be the 1-Mile Advance sign for the next interchange, or the 1-Mile Advance sign may be placed at the greatest practicable distance, less than 1 mile, with an appropriate change of indicated distance.

1D-39 2-Mile Advance Sign (E3-2)

The signs described in the three preceding sections constitute the minimum acceptable signing for an expressway interchange. On high-speed expressways with a wide spacing of interchanges an additional advance sign is desirable at a distance of approximately 2 miles. It should be generally identical with the 1-mile sign except for the distance indicated, and erected in the same manner.

Where the distance between interchanges is less than 2 miles, the sign with an appropriate change of indicated distance may be placed at 1½ miles in advance of the interchange.

Interstate.—Standards for the Interstate System prescribe the use of the 2-Mile Advance sign at all "major" interchanges.

Other advance destination information signs are provided for in sec. 1D-44.

1D-40 Next Exit Sign (E4)

Where exits are several miles apart and failure to make a desired turn at an interchange would require a driver to go a number of miles out of his way, it may be desirable to place a sign in advance of each interchange showing the distance from



E4
Variable size

that interchange to the next one. Such a sign standing alone would be highly misleading, since it actually does not refer to the immediate "next exit." An appropriate location for it is below the 1-Mile Advance sign or, less desirably, as a subordinate legend on that sign. The wording should be NEXT EXIT (10) MILES in letters of a minimum height of 8 inches (E4). If

made a part of the 1-Mile sign, the legend should be separated from that above it by a heavy horizontal line.

Interstate.—This sign is provided for in the standards for the Interstate System, in 10-inch capital letters.

1D-41 Rest and Information Area Signs (D5, E5)

It is common practice on rural highways to provide roadside parks or rest areas where a traveler may stop safely away from passing traffic for rest or picnicking. It is desirable to erect signs a few hundred yards in advance of such areas to permit the driver to reduce speed and leave the highway safely if he desires to stop. Messages such as **ROADSIDE REST 1000 FEET**, **PICNIC TABLE ¼ MILE**, or **ROADSIDE PARKING AREA ½ MILE** are typical (D-5).

On controlled-access expressways, as a feature of highway design, there should be set aside special areas, with properly designed access roadways, to serve the comfort and convenience of the traveling public. At a distance of 1 to 2 miles in advance of such an area, there should be erected at the roadside a sign carrying the legend **REST AREA**, **INFORMATION CENTER**, **SCENIC AREA**, or similar appropriate message, with a second line showing the distance (E5). At or in advance of the beginning of the deceleration lane there should be placed a sign similar to the Exit Direction sign (sec. 1D-37), with an arrow or the words **KEEP RIGHT** (or **LEFT**), or **RIGHT** (or **LEFT**) **LANE**. Within the gore there should be a final sign with an arrow pointing in the appropriate direction. On these signs the legend should be in capital letters not less than 10 inches high.

Since these signs serve a special purpose for local information rather than for route guidance, they may warrant the use of a special design or color combination. An interchange of the legend and background colors prescribed for other guide signs has been suggested, or a different and distinctive color scheme, such as a blue background with white legend.

Interstate.—Standards for the Interstate System prescribe the scheme of signs described above. The words **REST AREA** on the advance sign are in 16-inch capital letters, with the distance in a 16-inch numeral and 12-inch capital letters. The exit direction sign and the gore sign are in 12-inch capitals. Such signs shall have white legend on a blue background, with the legend, at least, reflectorized.

1D-42 Services Signs (E6, E7)

On high-type, controlled-access expressways, as a general rule, access to automotive service stations, restaurants, overnight lodgings and other commercial establishments is available only at interchanges or where a special service area or service roadways have been provided. It is often necessary, therefore, to indicate by signs where these facilities can be reached.

In an urban area where a built-up community is visible from the expressway, the driver can assume that any interchange exit will lead him to the services he needs within a reasonable distance, and Services signs are not ordinarily necessary. A similar situation exists where frontage roads are provided, but it may be desirable to give advance notice of access to the frontage road. Where services in rural areas are infrequent and perhaps difficult to reach, the Services sign may be very useful. Local conditions largely determine what will constitute a qualified establishment warranting a Services sign. Until generally acceptable policies and criteria have been developed by experience and research, each highway authority will have to make its own standards. In some locations signs may be needed to indicate that services are not available.

The Services sign (E6) should list the services available, limited to GAS, FOOD, LODGING, and PHONE, to the extent that they apply. As a general rule, a Phone sign is unnecessary at a location where a telephone is normally expected to be available. If the Services sign is not used as a supplemental sign in conjunction with the first of the advance interchange signs, it should carry such additional legend as NEXT EXIT or the appropriate mileage. The legend should be in capital letters of a minimum height of 8 inches. If desired the word SERVICES in larger letters may precede the listing of facilities.

If a public telephone is provided at a rest or information area, a supplementary plate carrying the legend PHONE may be mounted just below the Rest or Information Area sign.

Where, at an exit providing service facilities, it is a long distance to the next available facilities, it may be desirable to provide a sign reading NEXT SERVICES (22) MILES (E7). An appropriate location for such a sign is below the Exit Direction sign at the beginning of the deceleration lane. **This sign shall be used only if preceded by a Services sign having reference to the immediate exit.**

Colors for Services signs should be the same as for Rest Area signs (sec. 1D-41).

Interstate.—Standards for the Interstate System pro-

vide for Services signs with legend as above described in 10-inch capital lettering, and with reflectorized white legend on a reflectorized or opaque blue background.

1D-43 Parking Area Sign (D4-1)

In a congested urban area where an off-street public parking lot or garage is available, it is often desirable to guide traffic to such a nearby facility, thus minimizing aimless travel on the part of drivers unacquainted with the area.



D4-1
30" x 24"

The Parking Area sign may be used where it is desired to show the direction to a nearby public parking area. The sign shall be a horizontal rectangle of a standard size of 30 inches by 24 inches with a smaller size for secondary, low-speed streets of 18 inches by 15 inches. It shall carry the word PARKING, with the letter P five times the height of the remaining letters, and a directional arrow. The legend shall be green on a white background. If used, it should be erected on major thoroughfares at the nearest point of access to the parking facility and elsewhere where it can help relieve the local streets of traffic seeking a place to park. In general, it should not be used more than three or four blocks from the parking area. It shall be mounted in accordance with the general specifications for the erection of signs (secs. 1A-22, 23).

No warrants have been established for this sign in terms of the size of the parking facility, its accessibility, or whether a parking fee is charged. Local traffic authorities will have to determine the need for it under the conditions existing in the area concerned. Under some circumstances the sign may be useful in rural areas where crowds congregate for special events.

1D-44 Other Directional Signs

The guide signs described above cover most of the traveler's needs, but other signs may be used where they can provide additional useful directions. Nearby destinations not shown on expressway interchange advance signs may be shown on a special sign carrying up to three additional names and the legend NEXT EXIT, NEXT RIGHT, or SECOND RIGHT, erected about 1½ miles in advance of the interchange.

Interstate.—Signs of the above type are provided for in the standards for the Interstate System. They list up to two destinations, with the legend NEXT RIGHT or SECOND RIGHT, and are placed approximately midway between the advance exit signs if two are used. If only one advance exit sign is used the supplemental destination sign shall follow it by at least 800 feet.

Some expressways pass through historical, recreational, or metropolitan regions, or other areas of special interest served generally by a succession of several interchanges. Such areas may be indicated by a special sign several miles, if possible, in advance of the Advance Exit 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.

Interstate.—Signs of the above type are provided for in the standards for the Interstate System.

1D-45 Mileposts

To assist the driver in estimating his progress, to provide a means for identifying the location of emergency incidents, and to aid in highway maintenance and servicing, Mileposts may be erected along any section of a numbered highway route. It is recommended that these be simple panels, without border, having 4- to 6-inch numerals and no other legend. The numerals should be black on a white background or white on a green or black background, with suitable reflectorization. The Mileposts should be placed on the shoulder edge or 2 feet back from the face of any curb. If physical conditions prevent the placement of a Milepost at its correct location, it may be moved in either direction as much as 50 feet, or, if it cannot be placed within that degree of accuracy, it should be omitted. "Zero" mileage for any given route must be determined by the highway authorities in a manner appropriate to the highway network.

Interstate.—On the Interstate System it is prescribed that Mileposts shall be installed as above described on both sides of the highway, with zero mileage at south or west State lines, or at junctions where routes begin. The mileage numbering is to be continuous within any State. The Milepost panels are green, with 6-inch white reflectorized numerals.

1D-46 Information Signs

Of interest to the traveler, though not directly necessary for his guidance, are numerous kinds of information that may

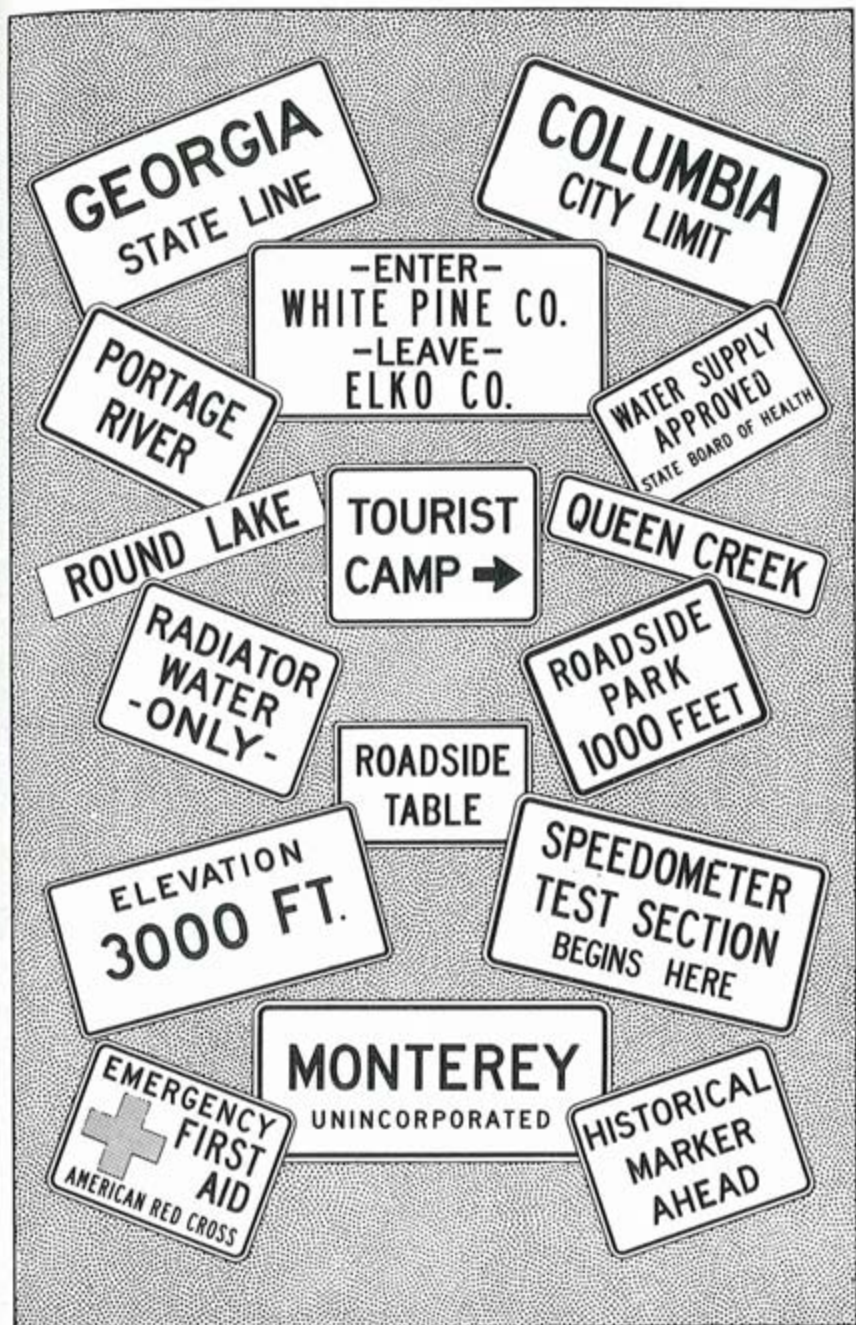


Figure 1-9. Typical information signs, selected from State highway department manuals.

properly be conveyed by information signs. They include such information as State lines, city limits, and other political boundaries, stream names, elevations, landmarks, scenic views, and similar items of geographical or cultural interest. Such signs should conform to the general standards for guide signs, and be large enough for adequate legibility. Since they are for information purposes and do not ordinarily serve to regulate, warn, or guide traffic (except perhaps indirectly as in the case of city limits) the need for uniformity in design to insure automatic response is not altogether essential. Typical signs of this type are shown in figure 1-9.

These signs shall be erected in accordance with the general specifications for sign erection (secs. 1A-22, 23). On expressways they should where practicable be spaced at least 800 feet from any other guide signs.

Interstate.—On the Interstate System it is prescribed that place names and stream names on such information signs shall be in 6-inch lower-case letters with 8-inch initial capitals. Generic words such as CITY LIMITS shall be in 6-inch capital letters. The legend shall be in reflectorized white on an opaque or reflectorized blue background.