

Manual On Uniform Traffic Control Devices - Signs

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INTRODUCTION

The most common device for controlling, safeguarding, or operating traffic is the traffic sign. As in the case of any other type of traffic control device, signs must be used only where necessary and where justified by facts and field studies.

Traffic control devices are all signs, signals, markings, and devices placed on or adjacent to a street or highway by authority of a public body or official having jurisdiction to regulate, warn, or guide traffic.

The need for high uniform standards was recognized a long time ago. The American Association of State Highway Officials, better known as AASHO, published a manual for rural highways in 1927. The National Conference on Street and Highway Safety published a manual for urban streets in 1929. The necessity for unification of the standards applicable to different road and street systems was obvious from the beginning. To meet this need, a joint committee of the American Association of State Highway Officials and the National Conference on Street and Highway Safety developed and published in 1935 the original addition of the manual on uniform traffic control devices. That committee, though changed from time to time in organization and personnel, has been in continuous existence and has been responsible for periodic revisions of the manual, including the present edition.

REVISIONS

In recognition of the proven international value and need for symbols, and to present a uniform and better understood system of signing, this present revision includes a wider use of symbols, both in the regulatory and warning series. Color coding is employed more extensively in signs, and the manual also includes for the first time a complete and separate part covering traffic controls for school areas.

GENERAL PROVISIONS

This manual sets forth the basic principles that govern the design and usage of traffic control devices. These principles appear throughout

the text in discussions of the devices to which they apply, and it is important that they be given primary consideration in the selection and application of each device.

The manual presents traffic control device standards for all streets and highways regardless of type or classification or the governmental agency having jurisdiction. To be effective a traffic control device should meet five basic requirements.

1. Fulfill a need.
2. Command attention.
3. Convey a clear simple meaning.
4. Command respect of road users.
5. Give adequate time for proper response.

In the case of regulatory devices, the actions required of motorists and pedestrians should be specified by state statute, or by local ordinance or resolution, which are consistent with national standards. Uniformity of meaning is vital to effective traffic control devices.

Five basic considerations are employed to insure that these requirements are met. They are: (1) Design, (2) Placement, (3) Operation, (4) Maintenance, (5) Uniformity.

Design

Design of the device should assure that such features as size, contrast, color, shape, and lighting or reflectorization are combined to draw attention to the device. Shape, size, color and simplicity of message, combine to produce a clear meaning. Legibility and size combine with placement to permit adequate time for response. Uniformity, reasonableness of the regulation, size and legibility combine to command respect.

Placement

Placement of the device should assure that it is within the cone of vision of the user so that it will command attention. It should be positioned with respect to the point, object, or situation to which it applies. The location combined with suitable legibility is such that a driver traveling at normal speed has adequate time to make proper response.

Operation

Operation or application should assure that appropriate devices be installed to meet the traffic requirements at a given location. The device must be placed in a uniform and consistent manner to assure that

the motorist can be expected to properly respond to the device, based on his previous exposure to similar traffic control situations.

Maintenance

Maintenance of devices should be to high standards to assure that legibility is retained, that the device is visible, and that it is removed if no longer needed. Clean, legible, properly mounted devices in good condition command the respect of motorists and pedestrians.

Uniformity

Uniformity of traffic control devices simplifies the task of the road user because it aids in recognition and understanding. It aids road users, police officers, and traffic courts by giving everyone the same interpretation. It aids public highway and traffic officials through economy in manufacture, installation, maintenance and administration.

UNIFORMITY

Simply stated, uniformity means treating similar situations in the same way. The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a non-standard device. In fact, this may be worse, in that such misuse may result in disrespect of those locations where the device is needed.

The responsibility for traffic control devices rests with a multitude of governmental jurisdictions. In virtually all states traffic control devices placed and maintained by state and local officials are required by statute to conform to a state manual which must be in substantial conformance with this manual. The uniform vehicle code has a provision for the adoption of the uniform manual. It says in part, "The state highway commission shall adopt a manual and specifications for a uniform system of traffic control devices for use upon the highways within this state. Such uniform system shall correlate with and so far as possible conform to the system set forth in the most recent addition of the manual on uniform traffic control devices for streets and highways."

The decision to use a particular device at a particular location should be made on the basis of an engineering study of the location. Thus, while the manual provides standards for design and application of traffic control devices, the manual is *not* a substitute for engineering judgement. It is the intent that the provisions of this manual be standards for traffic control devices installation, but *not* a requirement for installation.

Qualified engineers are needed to exercise the engineering judgment in the selection of traffic control devices, just as they are needed to locate and design the roads and streets, which the devices complement. Jurisdictions with responsibility for traffic control that do not have qualified engineers on their staffs should seek immediate assistance from either the state highway department, their county highway department, or the staff of a nearby large city who have professional traffic engineers, or a traffic consultant.

In the manual, sections dealing with the design and application of traffic control devices, the words "shall," "should" and "may" are used to describe specific conditions concerning these devices. To clarify the meanings intended in this manual by the use of these words, the following definitions apply:

1. Shall—a *mandatory* condition.
2. Should—an *advisory* condition.
3. May—a *permissive* condition.

The manual also includes two special parts dealing separately with construction and maintenance signing, and signing for school areas. Signing for the protection of the public and the workman on 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 so that its specifications will be conveniently available to contractors and highway employees who are not concerned with other parts of the manual.

Signs for school area traffic control are specified in a special section of the manual that was developed to achieve uniformity of traffic control in school areas. Each traffic control sign and control method described in this part fulfills a specific function related to a specific traffic condition.

Regarding 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 sign or its support shall bear any message that is non-essential to traffic control. Any unauthorized sign placed on the highway right-of-way without authority by a private organization or individual constitute a public nuisance. All unofficial and non-essential signs should be removed. Effective traffic control depends not only on appropriate application of devices, but on *reasonable* enforcement of *all* regulations as well. Standards in the manual are based on that concept.

Each standard sign shall be displayed only for the specific purpose prescribed for it in the manual. Signs required by road conditions or restrictions shall be removed immediately when those conditions cease to exist or the restrictions are withdrawn. Uniformity of application is as important as standardization with respect to design and placement. Identical conditions should always be marked with the same type of sign, irrespective of where those particular conditions occur. Determination of the particular sign or signs to be applied to a specific condition shall ordinarily be made in accordance with the criteria set forth in the manual. However, engineering judgement is essential to the proper use of signs, the same as with other traffic control devices. Traffic engineering studies may indicate that signs would be unnecessary at certain locations. The judgement resulting from traffic engineering studies of physical and traffic factors should be depended upon to determine locations where signs are deemed necessary. It is recognized that urban traffic conditions differ from rural, and in many instances signs must be applied and located differently. Where pertinent and practical, therefore, the manual sets forth a separate recommendation for rural and urban conditions.

Care should be taken not to install too many signs. A conservative use of regulatory and warning signs is recommended as these signs, if used to excess, tend to lose their effectiveness. 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.

CLASSIFICATION OF SIGNS

Functionally, signs are classified into three categories:

1. Regulatory signs.
2. Warning signs.
3. Guide signs.

Regulatory

Regulatory signs give notice of traffic laws or regulations.

Warning

Warning signs call attention to conditions on or adjacent to a highway or street that are potentially hazardous to traffic operations.

Guide

Guide signs show route designations, destinations, directions, distances, services, and points of interest and other geographical information.

STANDARD SIGN SHAPES

Octagon

The octagon shall be reserved exclusively for the STOP sign.

Equilateral Triangle

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

Round

The round shape shall be used for the advance warning of the RAILROAD CROSSING.

Pennant

The pennant shape with it's longest axis horizontal shall be used to warn of a NO PASSING ZONE.

Diamond

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

Rectangle—Vertical

The rectangle ordinarily with the longer dimension vertical shall be used for the regulatory signs except, of course, for the STOP and YIELD signs.

Rectangle—Horizontal

The rectangle ordinarily with the longer dimension horizontal shall be used for guide signs with exception of certain route markers and recreational area guide signs. The PENTAGON point up shall be used for school advance and school crossing signs.

SIGN COLORS

Red, black, white, orange, yellow, brown, green and blue are reserved for the identification of certain signs. There are also four other colors that are reserved for future needs. They are purple, light blue, coral and strong yellow-green. These have been identified as suitable for highway use.

Red

Red is used only as a background color for STOP signs, multi-way supplemental plates, DO NOT ENTER messages and WRONG WAY signs; as a legend color for parking prohibition signs, route markers, the circular outline and diagonal bar prohibitory symbols; and for the border and message for YIELD signs.

Black

Black is used as a background on ONE WAY, certain weight station signs, night speed limit signs and also as a message on white, yellow and orange signs.

White

White is used as the background for route markers, guide signs, fall-out shelter, directional signs, and regulatory signs, except STOP signs, and for the legend on brown, green, black and red signs.

Orange

Orange is used as a background color for construction and maintenance signs, and shall not be used for any other purpose.

Yellow

Yellow is used as a background color for WARNING signs, except where orange is specified herein and for school signs.

Brown

Brown is used as background color for guide and information signs related to points of recreational scenic or cultural interest.

Green

Green is used as a background color for guide signs, other than those using brown or white, and mileposts as a legend color on white background for permissive parking regulations.

Blue

Blue is used as background color for information signs related to motorist services, including police services and rest areas, and also evacuation route markers.

SYMBOLS

Symbol designs shall, in all cases, be essentially like those shown in the manual. A wider adoption of symbols in preference to word message is a desirable and important step toward the greater safety and facilitation of traffic. A change from word messages to symbols, particularly in the regulatory series will require significant time for public education and transition, consequently the manual includes educational plaques to accompany new symbol signs and continues, as an alternate, the previous standard word message signs in many cases. It is recognized that a change of this magnitude does not diminish the intent that an orderly transition to a consistent symbol system is desirable and

should proceed as rapidly as public acceptance and other considerations permit.

REGULATORY SIGNS

Regulatory signs inform highway users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent. These signs shall be erected wherever needed to fulfill this purpose, but unnecessary mandates should be avoided. The laws of many states specify that certain regulations are enforceable only when known by official signs. Some regulatory signs are related to operational controls, but do not impose any obligations or prohibitions. For example, signs giving advance of/or marking the end of a restricted zone are included in the regulatory group. Regulatory signs normally shall be erected at those locations where regulations apply. The sign message shall clearly indicate the requirements imposed by the regulation and shall be easily visible and legible to the motorist concerned.

Classification of Regulatory Signs

Regulatory signs are classified in the following groups:

1. The right-of-way series
 - (a) STOP sign
 - (b) YIELD sign
2. Speed series
3. Movement series
 - (a) Turning
 - (b) Alignment
 - (c) Exclusion
 - (d) One-way
4. Parking series
5. Pedestrian series
6. Miscellaneous series

Summary of Regulatory Signs

1. The terms "shall", "may", and "should" are defined.
2. Wider use of symbols and educational plaques where necessary is provided. Examples of signs with the symbol concept adopted includes: NO RIGHT TURN, NO LEFT TURN, NO U TURN, KEEP RIGHT, DO NOT ENTER, NO TRUCKS, NO BICYCLES.
3. At a multi-way stop intersection a supplementary plate carrying the message ALL-WAYS or showing the actual number of approach legs is required.

4. Warrants are provided for multi-way STOP signs.
5. The YIELD sign is redesigned. The triangular shape is retained, but the sign will carry red legend and border on a white background.
6. The minimum speed sign is to be used in combination with the regular speed limit sign.
7. A section is added on WEIGH STATION signs.
8. The black and white railroad crossbuck will appear as a regulatory sign instead of a warning sign.
9. Signs associated with school area control are removed and are to be contained in a separate chapter.

WARNING SIGNS

Warning signs are used when it is deemed necessary to warn traffic of existing or potentially hazardous conditions on or adjacent to a highway or street. Warning signs require caution on the part of the motorist and may call for reduction of speed or a 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 because unnecessary use to warn of conditions which are apparent tends to breed disrespect for all signs. Typical locations and hazards that may warrant the use of warning signs are:

1. Changes in horizontal alignment
2. Intersections
3. Advance warning of control devices
4. Converging traffic lanes
5. Narrow roadways
6. Changes in highway design
7. Grades
8. Roadway surface conditions
9. Railroad crossings
10. Entrances and crossings

Summary of Warning Signs

1. The provisions in the manual are not directives for the installation of devices at all locations. However, when an engineering study indicates the need then the devices are to be installed as specified.

2. In recognition of the international usage of symbols and to present a uniform and better understood system of signing the revision includes a wider use of symbols. Symbols will be used in lieu of word messages where practicable. Examples of signs that now utilize the symbol concept are: SIGNAL AHEAD, PAVEMENT WITH TRANSITION, MERGE, ROAD NARROWS, DIVIDED HIGHWAY, HILL, BUMP, DIP, SLIPPERY PAVEMENT.
3. The black and white railroad crossbuck has been removed from the warning sign section and will appear in the regulatory sign section.
4. To emphasize the signing for highways with restricted sight distance a pennant shaped NO PASSING ZONE sign for a left shoulder erection is now permissive.
5. All devices, signals, signs, and markings, normally associated with schools are contained in a separate chapter; therefore, warning signs normally associated with schools will be found in another chapter.
6. With few exceptions all signs for use in construction and maintenance areas will have a black message on a blaze orange background.

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 sights, and generally to give him such information as will help him along his way in the most simple direct method possible. Guide signs are considered in four major groups: (1) Route markers and auxiliary markers, (2) Destination and mileage signs, (3) Expressway guide signs, (4) Other guide signs.

Whenever county road authorities elect to establish and identify a special system of important county roads, county road identification markers are to be designed and used as specified in the manual. The uniform county route marker shall be a pentagonal shape and shall consist of a reflectorized yellow legend (county name, route letter and number) and border on a blue background of a size compatible with other route markers used in common assemblies.

Summary of Guide Signs

1. Color of guide signs to be white message on a green background.
2. Signing for recreation areas of scenic or cultural interest to have a white message on a brown background.
3. Modify color and location requirements for street name signs.
4. Expand route markers to show county route marker.
5. Revise use of arrows on overhead signs.
6. Eliminate 16-in. route shield in favor of 24-in. marker.
7. Modify auxiliary plate size from 21 in. x 9 in. to 24 in. x 12 in.
8. Delete detour arrow sign similar to the one way sign to enhance symbol for one way sign. Detour sign to be black on orange.
9. Add telephone symbol sign.
10. Add bike route sign.
11. Add traffic signal speed sign from warning sign section. Color to be white on green.

CONCLUSION

In final summary of this presentation, it should be said that those persons, and groups of persons charged with the responsibility of traffic control in this state should obtain a copy of the revised edition of the manual as soon as the publication is available. Once a copy is in their possession all persons should pledge themselves to complete conformity so as to achieve success in the controlling of traffic and the protection of lives and property.