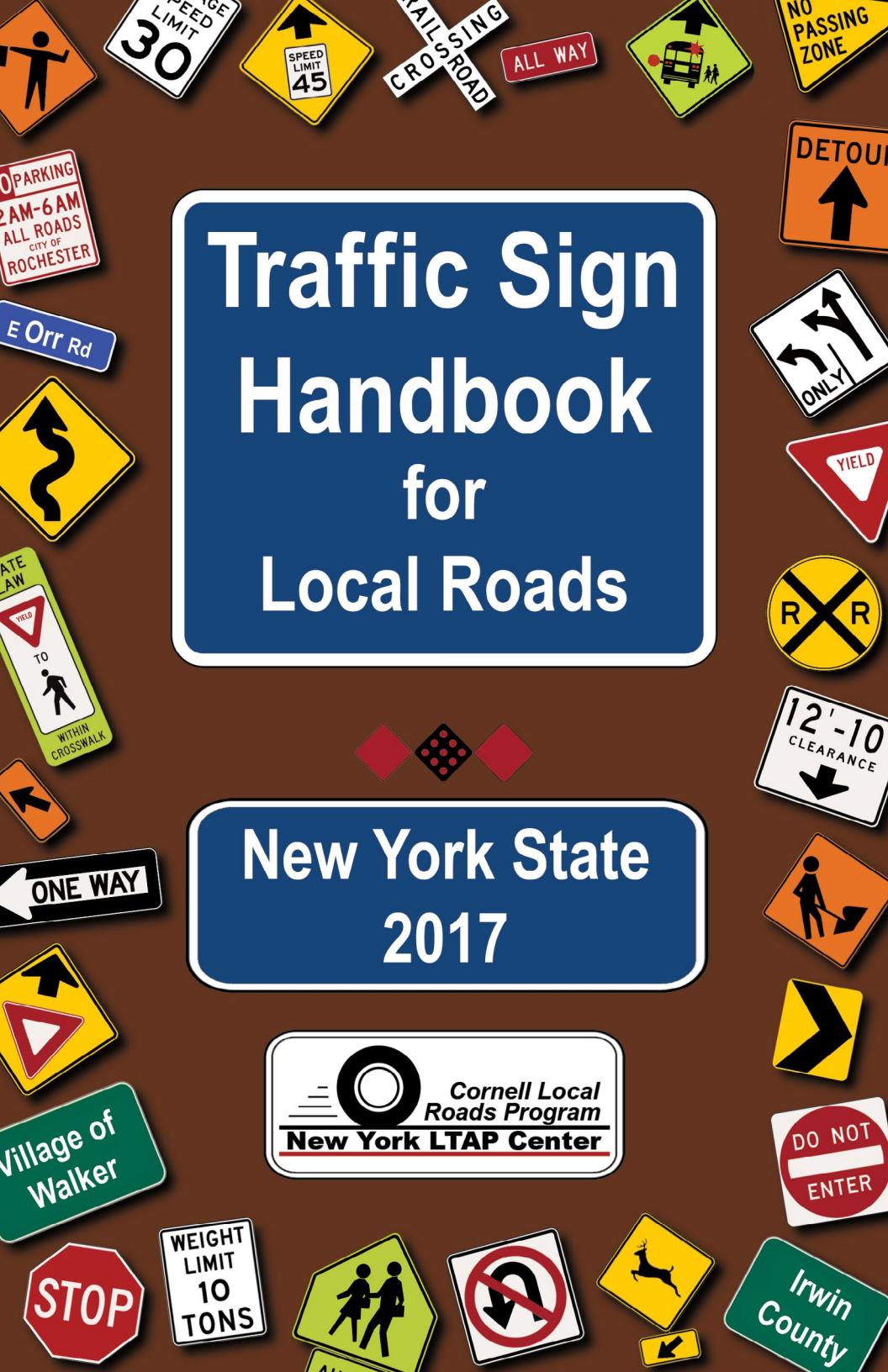
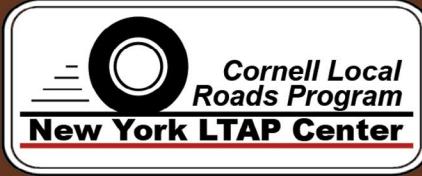


Traffic Sign Handbook for Local Roads



New York State 2017



Traffic Sign Handbook for Local Roads

2017 New York State Edition

March 2017
CLRP Report 17-01



Local & Tribal Technical
Assistance Program

Cornell Local Roads Program

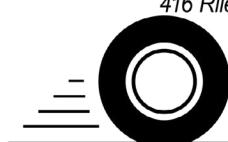
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New York LTAP Center



Local & Tribal Technical
Assistance Program



**Governor's Traffic
Safety Committee**



Cornell University

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Introduction

Definitions

The following terms are used in this Handbook to refer to specific documents.

- **MUTCD—Manual on Uniform Traffic Control Devices.** The term refers to the general concept of the Manual on Uniform Traffic Control Devices. When used in the Handbook, it refers to the combined National MUTCD and NYS Supplement.
- **National MUTCD—2009 Manual on Uniform Traffic Control Devices for Streets and Highways.** Specifically refers to the nationwide set of standards published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.
- **New York State Supplement (NYS Supplement).** Specifically refers to the New York State Supplement to the *National Manual on Uniform Traffic Control Devices for Streets and Highways—2009 Edition*
- **SHSM—Standard Highway Signs and Markings Book.** This book, published by the Federal Highway Administration, contains the actual sign and marking layouts for specific traffic control devices in the National MUTCD.
- **Handbook—Traffic Sign Handbook for Local Roads:** 2017 New York State Edition. This handbook.

About this Handbook

This 2017 New York State Edition of the *Traffic Sign Handbook for Local Roads* is based upon combined requirements of the National MUTCD and the New York State Supplement. The *Traffic Sign Handbook for Low Volume Rural Roads* was first published by the New York State Department of Transportation (NYSDOT) in 1985.

Section 1680 of the New York State Vehicle and Traffic Law requires the New York State Department of Transportation (NYSDOT) to adopt and maintain a Manual on Uniform Traffic Control Devices (MUTCD). As of September 2007, the official MUTCD for New York State is the National MUTCD combined with the New York State Supplement. The National MUTCD is maintained by the Federal Highway Administration (FHWA) and is updated on a regular basis. The official New York State Supplement is contained in 17 NYCRR

New York State Traffic Sign Handbook for Local Roads

Chapter V. An unofficial version is available online from the New York State Department of Transportation. The official regulation is filed with the Department of State and published by Thomson Reuters/West as 17 NYCRR Chapter V.

This Traffic Sign Handbook for Local Roads is meant to be a field companion to the National MUTCD and the New York State Supplement (17 NYCRR Chapter V). It is a training manual, not a standard, specification, or regulation. It is adapted from the National MUTCD and the New York State Supplement (17 NYCRR Chapter V) courtesy of the New York State Secretary of State and Thomson Reuters/West. The figures and tables in the Handbook are provided as guidance for the placing of traffic control devices, but should not take the place of a proper engineering study as required by the MUTCD. While every effort has been made to ensure the accuracy of this Handbook, the Cornell Local Roads Program (CLRP), the New York State Secretary of State, the New York State Department of Transportation, and Thomson Reuters/West do not guarantee the accuracy of the Traffic Sign Handbook for Local Roads, nor may it be read into evidence in the New York State courts. To ensure accuracy and for evidentiary purposes, reference should be made to the *Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR)*.

How to use this Handbook

This Handbook provides guidance for solving many traffic problems encountered on two-lane, local roads. Cross-references to the MUTCD are included herein, and it should be consulted whenever this Handbook does not describe the exact situation at hand. Refer to the MUTCD for standards and guidance pertaining to multilane roads and streets, collectors, and arterials.

The MUTCD describes all approved traffic control devices and their proper use. This fosters uniformity throughout the State and Nation. A driver who sees a particular traffic control device should expect the same conditions and be prepared to take the same action whether he or she is on a town road in the Finger Lakes Region of New York or on an expressway in Missouri. This is the goal of uniform traffic control devices.

To foster this uniformity, many states, including New York State, prohibit municipalities from purchasing or fabricating signs that do not conform to the current MUTCD or any amendments. Compliance dates for signs that are on hand, in place, or on order when a new revision is adopted are contained in the National MUTCD. Existing signs shall be brought into compliance with the MUTCD as part of a systematic upgrading and installation of traffic control devices. The newest version of the national MUTCD should be checked to make sure that material contained in this Handbook has not been changed.

Every effort has been made to ensure that this Handbook is consistent with the MUTCD. However, in using only those parts of the MUTCD that

have information that applies to “normal” situations on local roads, some situations have necessarily been left out. If the conditions in this Handbook do not fit your traffic situation, or if there is any question about the applicability of the Handbook to a particular situation, consult the MUTCD and/or a knowledgeable engineer. Assistance may be obtained through your State Department of Transportation, your LTAP center, or a traffic engineering consultant.

The version of the Handbook is only applicable in New York State outside of New York City. If you are in another state, check with your LTAP center to obtain a copy of the National Edition of the Traffic Sign Handbook or one that is specifically modified for your state.

English units are used for all measurements in this Handbook.

Acknowledgments

The Cornell Local Roads Program wishes to thank all who made this Handbook possible. This includes the New York State Department of Transportation for allowing us to use material from their *Traffic Sign Handbook for Low Volume Rural Roads* and the *New York State Supplement*, as well as the New York State Department of State, and also Thomson Reuters/West for permission to draw upon material from 17B NYCRR. Appreciation is also expressed to all the reviewers who commented and provided advice on the draft manuscript.

This *New York State Edition Traffic Sign Handbook for Local Roads* is published with the financial support of the New York State Department of Transportation, the Federal Highway Administration’s Local Technical Assistance Program, and Cornell University. Additional funding was provided by the National Highway Traffic Safety Administration via a grant from the New York State Governor’s Traffic Safety Committee.

General Information

Positive guidance

Positive guidance suggests that competent drivers can be given appropriate information about hazards in order to avoid errors. The concept of “positive guidance” was created by Gerson Alexander when he was Chief of Human Factors for FHWA. Simply stated, positive guidance means designing the road and its surroundings in such a way that drivers have the information they need when they need it in order to make the right decision. Too much or too little information, or information that is provided too soon or too late, can confuse drivers and cause safety problems. Positive guidance should be considered when determining the need for and placement of traffic control devices.

Meanings of “Shall”, “Should”, and “May”

As used in this Handbook, the words “shall,” “should,” and “may” have the following standard meanings:

SHALL—A mandatory condition. Requirements having “shall” stipulations are mandatory. No discretion in following them is allowed. It is acceptable to exceed the minimum standards. Items marked as “shall” are typically included as a STANDARD in the MUTCD.

SHOULD—A recommended practice. Where “should” is used, the suggestion is recommended, and normally is to be followed, but is not mandatory. Deviation from such provision is permissible if, and to the extent that, there is justifiable cause to do so. The reasons for any deviation should be documented and filed for future reference. Items marked as “should” are typically included as GUIDANCE in the MUTCD.

MAY—A permissive condition. No requirement for design or application is intended, but such provisions are intended to help improved uniformity when implemented. Items marked as “may” are typically included as an OPTION in the MUTCD.

The MUTCD contains additional information and background details not included in this handbook. When available, the background information is usually included in a SUPPORT section.

Documentation and engineering judgment

Occasionally, it will be impossible to meet all of the requirements or recommendations when installing a traffic control device. If the MUTCD says “shall,” it is mandatory. If the MUTCD says “should,” come as close as you can to the recommendation. Exceptions are allowed, if circumstances warrant it. Before placing any sign, be sure it is really needed and meets the basic considerations listed below. Too many signs lead to disrespect and sign pollution. When thinking about whether to place a sign, keep in mind the principle to “Simplify and Clarify.”

In every case, write down an explanation of the sign installation, what you did about it, and why. Be sure to document why you were unable to meet the requirements of a “should” condition. Also document that you followed the MUTCD. This will be particularly helpful if a lawsuit arises years later involving the traffic control device.

Authority

Section 1A.07 of the National MUTCD states that “The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or the official having jurisdiction, or, in the case of private roads open to public travel, with the private owner or private official having jurisdiction.” The local agency should determine the need to authorize, place and maintain traffic control devices necessary to satisfy legal requirements and to promote the safe, efficient flow of traffic. Traffic control devices placed under this authority must conform to other statutes and the MUTCD.

Section 1682 of the NYS Vehicle and Traffic Law authorizes local government to determine the need for, authorize, place and maintain traffic control devices necessary to satisfy legal requirements and to promote the safe, efficient flow of traffic. Traffic control devices placed under this authority must conform to other statutes and the MUTCD. See Title VIII of the NYS Vehicle and Traffic Law for the respective powers of state and local highway authorities.

Need for law, order, rule or regulation

All regulatory signs erected by a municipality must be sanctioned by a law, order, rule, or regulation of an authorized legal body. Any local traffic control legislation must be specifically authorized by the NYS Vehicle and Traffic or Highway Law. The authority to enact traffic ordinances depends on the type of municipality. Prior to authorizing and erecting a regulatory sign, local highway officials should consult with their municipal attorney.

Statutory mandates

State law requires that motorists and other highway users shall be given notice of certain highway conditions. These New York State laws and the related sections of the MUTCD are:

WEIGHT LIMITS. Vehicle and Traffic Law sections 1621(b), 1640(c), 1650(b), and 1660(b) require highway authorities to determine safe load capacities for bridges and elevated structures under their jurisdiction. At any structure incapable of safely carrying legal loads permitted by Section 385 of the Vehicle and Traffic Law, signs must be erected to inform persons of the safe capacity. The MUTCD sections 2B.59, 2C.103 and 5B.04 and Handbook page 45 cover devices used to post load limits.

LOW CLEARANCES. Vehicle and Traffic Law sections 1621(c), 1640(d), 1650(c), and 1660(c) require posting of signs informing persons of the legal overhead clearances of bridges and elevated structures when the measured clearance (the vertical distance between the traveled portion of the roadway and the overhead structure) is less than 14 ft. Legal clearance is one foot (1 ft) less than measured clearance. MUTCD sections 2B.108 and 2C.27 and Handbook page 47 describe devices and standards for posting overhead clearances.

DEAD END HIGHWAYS. Section 125-a of the General Municipal Law requires municipalities to post signs giving notice of dead end streets and roadways. Sections 2C.26 and 5C.11 of the MUTCD and pages 36 and 62 of the Handbook provide devices for this posting.

RAILROAD GRADE CROSSINGS. Section 53 and 53-a of the Railroad Law require installation of warning and regulatory signs, as well as other devices, at locations where railroads cross highways at grade. MUTCD sections 5F.02, 5F.03, 8B.03, 8B.04, and 8B.06 and Handbook Chapter 4 (Page 51) provide standards for the design and use of these devices.

ROAD CLOSURES. Highway Law sections 10, 42-a, 102, 104, 140, 230, and 231 require posting of signs, and provision of barricades and lights, when a road or bridge is closed to traffic. MUTCD sections 2B.58, 5B.04, and 6F.20 and Handbook pages 55, 56, and 81 cover these devices.

Basic considerations

For a traffic control device to be effective, it should meet these basic principles:

- Fulfill a need
- Command attention
- Convey a clear, simple meaning
- Command respect
- Give adequate time for response

If a traffic control device does not meet these basic needs, it might be ignored, misunderstood, overlooked, or otherwise not meet the need it is meant to fulfill. To this end, there are certain basic requirements for the use and placement of traffic control devices:

DESIGN. The features of standard road signs, such as color, contrast, shape, and legend, are intended to draw attention to the signs and make them easy to recognize. The legend and size of the sign need to make it legible from far enough away that the motorist can react in time. Minor modifications are permitted to fit a specific situation, as long as they do not alter the basic meaning of the sign or make it more difficult to read.

When there is a symbol sign in the National MUTCD, it should be used. If there is a text equivalent, it may be used, but the symbol sign is preferred. Many of the text equivalents are not allowed in New York State.

PLACEMENT. A sign should be placed where it will attract attention. It should be placed in a location where a driver has enough time to see the sign, understand it, decide what to do, and perform that action. Signs should be placed where they do not create hazards or maintenance problems or conflict with other signs.

OPERATION. Devices with moving parts, lights, etc. must operate as prescribed in the MUTCD. This ensures consistency with similar devices throughout the country.

MAINTENANCE. Faded and damaged signs lose visibility, and might not be noticed or heeded. Retroreflectivity is often lost before the color has faded, so a sign that is legible by daylight may be illegible at night. Signs should be regularly inspected and deficient signs should be replaced promptly. New standards on minimum retroreflectivity are discussed later in this section.

UNIFORMITY. This is important so that a driver from anywhere in the country can come to your community and understand the intent of your traffic control devices. It is also important for members of your community when they travel. Signs that do not conform to the MUTCD should be replaced with ones that do. Signs that have been deleted or changed from previous editions of the MUTCD must be removed or replaced as prescribed in the MUTCD.

Types of signs

REGULATORY SIGNS inform road users of traffic regulations and laws. They are used to control vehicle, bicycle, and pedestrian movements. They include stop signs, parking signs, speed limits, etc. Regulations cannot be enforced unless the proper signs are in place. Regulatory signs can be used to remind drivers of statutory rules, but statutory rules do not need to be signed to be enforced. For example, it is illegal to park a vehicle in front of a fire hydrant, whether or not a sign prohibits it.

If properly used and enforced, regulatory signs can promote smooth, orderly traffic flow. When they aren't used correctly, they can often cause more problems than they solve. For example, unneeded stop signs cause unnecessary air and noise pollution. Drivers often disobey regulations they perceive to be unneeded. These drivers may develop a habit of disobeying traffic regulations, whether or not they are needed. Other roadway users may expect them to obey the regulation, and act accordingly. For example, a pedestrian may cross a street expecting an approaching driver to stop at the stop sign. If the driver does not stop, a serious injury could occur.

Most regulatory signs are rectangles taller than they are wide. There are some exceptions, such as stop and yield signs. White, black and red are the most common colors used for regulatory signs.

WARNING SIGNS are used to tell road users there is a need for caution because of a condition on or near the roadway and of situations that might not be readily apparent. Warning signs are especially helpful to drivers who are not familiar with the road. Warning signs should only be used where needed, because overuse tends to cause disrespect for all warning signs and reduces their effectiveness.

After you determine that a warning sign is needed, consider whether the hazard can be removed. Removal of the hazard is always preferable to adding signs. If it is impossible or not cost effective to remove the hazard, then a warning sign should be installed. If you plan to remove the hazard, but not immediately, a sign should be used to warn traffic of the condition until it is removed.

Warning signs are usually diamond-shaped, with black text on a yellow background. When a sign warns of a condition caused by road work, it should have an orange background. An exception is the railroad crossing sign (W10-1). It is always round, and it always has a yellow background, even if used in a work zone. Regulatory signs do not change color in work zones.

Certain warning signs may have fluorescent yellow-green backgrounds. These include pedestrian, handicapped and bicycle signs. The use of fluorescent yellow-green is optional on these signs. School signs shall be fluorescent yellow-green in color. Warning signs for incident management may be fluorescent pink in color. These new colors provide emphasis to the different nature of the warning provided by these particular signs.

GUIDE AND INFORMATION SIGNS help drivers reach their destinations. They include route markers, destination signs, and information signs. They typically have green, blue or brown backgrounds and white legends.

Retroreflectorization

Traffic signs shall be retroreflective so that they have essentially the same appearance day and night. Black portions of a sign face need not be retroreflectorized. Materials used for signs should provide nighttime visibility comparable to daytime visibility. Table 1 shows the minimal retroreflectivity levels. Highway agencies will need to develop a plan for the management of signs with regards to retroreflectivity. Compliance dates can be found in Table I-2 of the MUTCD. When there are concerns about visibility of signs due to ambient light or other conditions, a higher level of retroreflectivity may be warranted.

Sign size

The standard size for signs on two-lane roads (two-lane conventional highways in MUTCD) is shown in the Cross Reference Index in Appendix A. For other permitted sign sizes see the MUTCD section shown in the Cross Reference Index. Smaller signs allowed on low-volume roads (fewer than 400 vehicles per day) are shown in parentheses in the Cross Reference Index. Where standard size signs have not had the desired effect, larger signs may be used for added emphasis. First, check to make sure the existing sign meets the basic considerations listed above.

Sign location

GENERAL. Proper location of each sign is essential to obtain maximum visibility and effectiveness. The location of a sign must be compatible with the layout of the highway. If signs are placed in locations different than what is shown in the MUTCD or this Handbook, the reasons for this placement should be documented and filed for future reference.

All sign locations should be carefully checked to ensure that nothing obstructs the motorist's view of the sign and that nighttime visibility will be adequate. Exercise care to avoid placing signs in dips, beyond hillcrests, or at other places where they would not be seen by motorists soon enough to allow perception and safe reaction. Make sure a new sign will not block the view of an existing sign. Always consider the possibility of a sign being obscured by parked cars or summer foliage, or being a hazard to pedestrians. Any requirements of the Americans with Disability Act (ADA) should be followed.

ROADSIDE SIGNS. Ground-mounted signs should be located on the right side of the roadway facing approaching traffic, unless another location is required or permitted. Signs in any other position should be considered supplementary to those in the usual location.

Table 1. Minimum maintained retroreflectivity levels
 (Modified from Table 2A-3 of the MUTCD)

Sign Color	Criteria	Sheeting Type (ASTM D4956-04)					
		I	II	III	VII	VIII	IX
White on Red	See Note 1	35 / 7					
Black on Orange or Yellow	See Note 2	*	n.a. / 50				
	See Note 3	*	n.a. / 75				
Black on White	—	n.a. / 50					
White on Green	Overhead	* / 7	* / 15	* / 25	250 / 25		
	Shoulder	* / 7	120 / 15				

NOTES: Levels in cells represent legend / background retroreflectivity (for positive contrast signs). Units are cd/lx/m² measured at an observation angle of 0.2° and an entrance angle of -4.0°.

1. Minimum Contrast Ratio ≥3:1
 (white retroreflectivity ÷ red retroreflectivity).
2. For text signs measuring 48 inches or more and all bold symbol signs. Bold symbol warning signs are noted with each sign description later in the Handbook.
3. For text signs measuring less than 48 inches and all fine symbol signs. All symbol signs not listed in the bold category are considered fine symbol signs.

* = Sheeting type should not be used.

Special Case Signs	<ul style="list-style-type: none"> • W3-1—Stop Ahead: Red retroreflectivity ≥7 • W3-2—Yield Ahead: Red retroreflectivity ≥7, White retroreflectivity ≥35 • W3-3—Signal Ahead: Red retroreflectivity ≥7, Green retroreflectivity ≥7 • W14-3—No Passing Zone, W4-4p—Cross Traffic Does Not Stop, or W13-2, -3, -1, -5—Ramp & Curve Speed Advisory Plaques: Use largest sign dimension to find proper category in above table.
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LATERAL PLACEMENT. Where conditions permit, signs on roads without curbs should have a lateral clearance of at least twelve feet (12') from the edge of the travel lane to the near edge of the sign (see Figure 1), or six feet (6') from the edge of the shoulder if the shoulder is more than six feet (6') wide (see Figure 2). When physical limitations or visibility problems prohibit such placement, signs shall be located as far from the travel lane as possible.

On curbed roads, the edge of the sign should be at least two feet (2') from the face of the curb (see Figure 3). The sign should be further from the curb, if possible, to minimize the chance that it will be struck by vehicles. This is especially true on corners where trucks turn frequently. Take care to make sure the sign and sign post will not block a sidewalk or cause interference with pedestrians or bicyclists.

Guiderail will deflect when a vehicle hits it. Sign posts should be installed outside of the deflection distance of the guiderail type. This is especially important for large signs on heavy-duty posts. Information on deflection distances can be obtained from the AASHTO Roadside Design Guide, the New York State Department of Transportation or Cornell Local Roads Program.

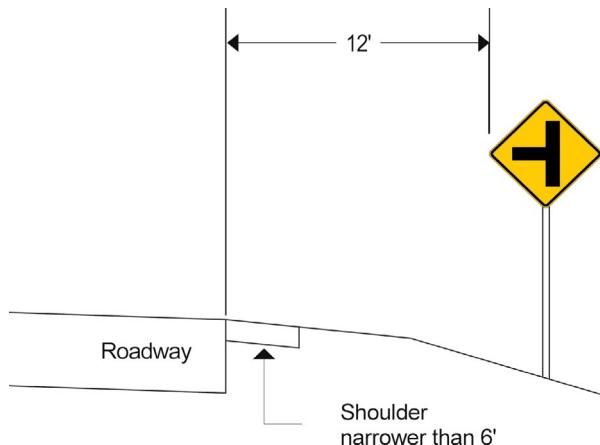


Figure 1. Sign placement with no or narrow shoulders

HEIGHT. Sign height is measured vertically from the edge of the nearest travel lane to the bottom of the sign.

Single signs shall be at a height of at least five feet (5') above the edge of the travel lane (Figure 4) in rural areas. Where supplemental plaques are used, the height of the supplemental plaque shall be at least four feet (4') (Figure 5). Where parking or pedestrian movements occur, these minimum heights shall be seven feet (7') and six feet (6') above the edge of the sidewalk or curb, respectively. The bottom of any sign over a sidewalk shall be at least seven feet (7').

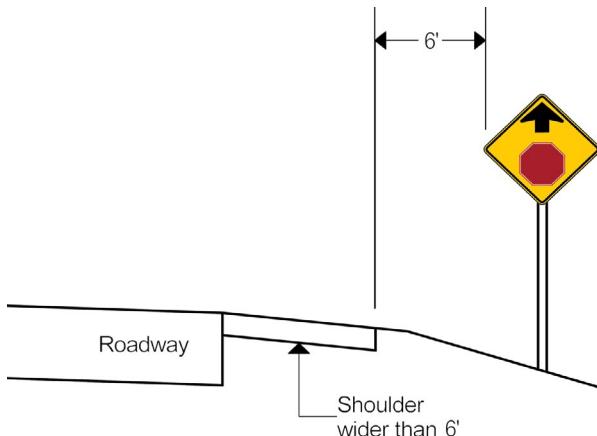


Figure 2. Sign placement with shoulders greater than 6 feet wide

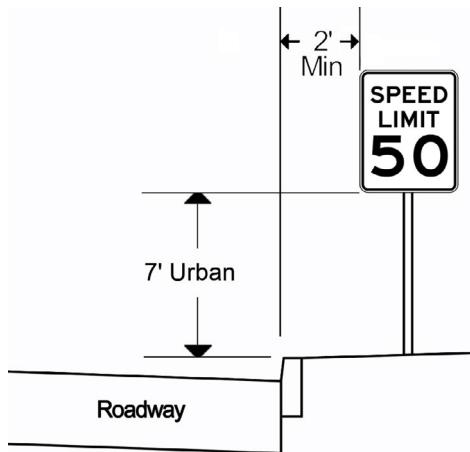


Figure 3. Sign placement with curbs in residential or business districts

LONGITUDINAL PLACEMENT AND ADVANCE POSTING DISTANCE.

The distance along the road from a sign to the condition, regulation, or action to which it refers is the longitudinal placement. Placement of signs along the highway depends on the type of sign, the nature of the message, and, for many signs, the prevailing speed of traffic. The posted speed or the 85th percentile speed shall be used as one factor in determination of sign spacing.

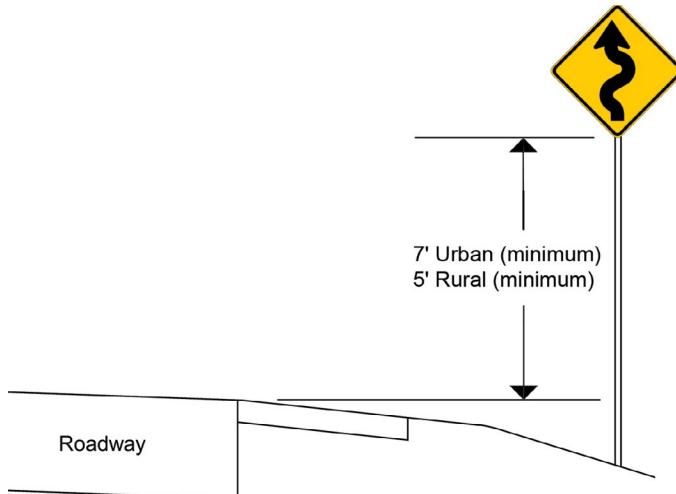


Figure 4. Sign height for single sign

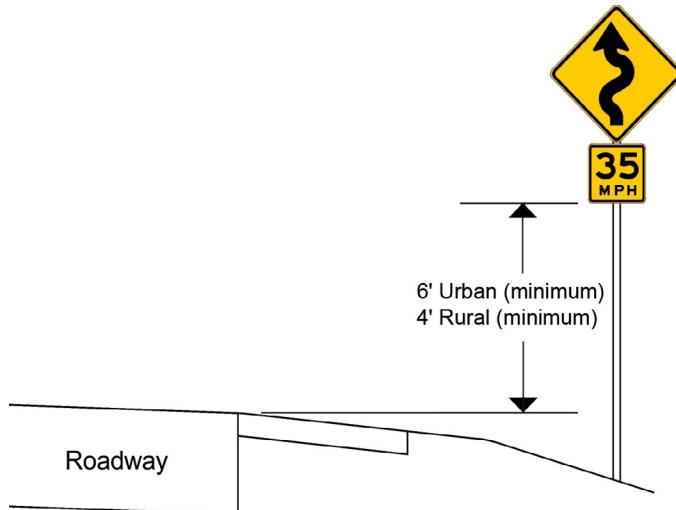


Figure 5. Sign height with supplemental plaques

The placement of signs in relation to each other is affected by sign type and highway characteristics. Except for signs with supplemental plaques, signs should be erected individually. Exceptions to this rule include route and direction signs grouped to clarify information for highway users and street name signs posted above a yield or stop sign.

Signs requiring decisions by the motorist should be sufficiently separated to provide adequate response time. Motorists react best when they are only required to make one decision at a time. Spacing of signs in feet along a roadway of at least 5 to 7 times the speed limit in mph is advisable where possible. At 55 mph, this would result in a spacing of 275 to 385 feet between signs. At 30 mph the spacing would be 150 to 210 feet. Signs at intersections and in built-up areas often cannot meet this spacing. On high-speed roads, longer spacing should be provided when possible.

Situations will arise where more than one sign is warranted at the same location. The importance of the signs should be considered in resolving this problem. Warning signs and important regulatory signs (such as stop signs) should generally take precedence over other regulatory and guide signs. The message for a greater hazard should take priority over one for a lesser hazard. Next in importance are regulatory signs, with the sign posting the most important regulation having the priority. Guide signs have the most flexibility in placement, so they normally have the lowest priority on local roads.

Where physical conditions limit visibility, the sign location should be suitably adjusted. For example, a post-mounted sign placed immediately beyond an overpass may not be sufficiently visible. Placing the sign just before or well beyond the overpass could improve its visibility and effectiveness. If possible, avoid placing signs in locations where they would interfere with roadway maintenance activities, such as ditching or mowing. The reason for adjusted locations should be documented and filed for future reference.

Advance posting distance for warning signs is determined by the approach speed and the action required to respond to the condition. These factors govern the travel distance needed for the driver to understand and react to the sign message, and perform any necessary action.

For purposes of determining advance posting distance, each highway warning sign is in one of two posting categories. Condition A concerns speed reduction and lane changing in heavy traffic while Condition B addresses the need for a motorist to decelerate from a posted or 85th percentile speed to an advisory speed that would be appropriate for the condition. Condition C is used when signs do not require motorists to slow down.

PREVAILING SPEED. The speed at or below which vehicles generally travel at a particular location under optimum pavement, weather, visibility, and traffic volume conditions is called the prevailing speed. For the purpose of this Handbook, the "prevailing" speed is the same as the "85th Percentile" speed as used in the MUTCD.

Table 2 shows the minimum advance posting distances based upon the prevailing and advisory speed for Condition B signs. All advance placement distances in the Handbook refer to Condition B in the MUTCD. Information on which decelerated speed to use is provided with the information for each sign. For decelerated speeds greater than 60 mph,

refer to Table 2C-4 in the NYS Supplement. No signs using Condition A from the MUTCD are discussed in the Handbook. Please note that the distances in this Table are different from the National MUTCD and should only be used in New York State.

The advisory speed of 0 mph is used for signs where the driver may need to stop. Examples of signs in this category are stop ahead, flagger ahead, and intersection signs. For signs with conditions that require a driver not to exceed a recommended speed, the other columns in Table 2 should be used. Advisory speed signs supplement signs when the advisory speed is less than the legal speed limit or when engineering judgment indicates the supplemental plaque is needed to warn road users. Examples of such signs include Curve, Hill, and Rough Road signs.

The values in Table 2 are suggested minimum advance posting distances on essentially level approaches for various approach speeds and for various advisory speeds. Advance posting distances should be increased on downhill approaches to accommodate the greater braking distances involved. On steep upgrades, the values may be decreased. For further information, see Section 2C.05 of the MUTCD or contact your State Department of Transportation, your LTAP Center, or a traffic engineering consultant.

Sign supports

Traffic sign supports along the roadside sometimes present a hazard of injury or death to an errant driver who strikes the support. Sign posts within the clear zone shall be crashworthy (breakaway, yielding) or shielded with a longitudinal barrier or crash cushion. As you update your sign installations, make sure the new supports meet the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or the AASHTO Manual for Assessing Safety Hardware (MASH). This will help municipalities reduce their liability risk. Over time, MASH will be the controlling standard for sign support hardware.

These sign support systems are designed to minimize the hazard to motor vehicle occupants in collisions. These supports have been tested to demonstrate that they are likely to break away in a controlled manner when hit, which is unlikely to cause injury to the occupants of the vehicle. Many have base stubs designed to be reusable after a collision, reducing the labor needed for repair.

Lists of approved proprietary signpost systems are available from the Federal Highway Administration. Websites for these lists are given in Appendix C. *A Guide to Small Sign Support Hardware*, published by the American Association of State Highway and Transportation Officials (AASHTO), is a good source of information on proprietary and non-proprietary sign post systems.

Table 2. Guidelines for advance placement of warning signs
 (Condition B from Table 2C-4 in NYS Supplement)

Posted or 85 th - Percentile Speed (mph)	Advance Placement Distance (feet)	Condition B: Deceleration to the listed advisory speed (mph) for the condition										
		0 (stopped)	5	10	15	20	25	30	35	40	45	50
20	115	110	105	90	75	-	-	-	-	-	-	-
25	155	160	150	135	120	95	-	-	-	-	-	-
30	200	205	195	185	165	140	110	-	-	-	-	-
35	250	255	245	235	215	190	160	130	-	-	-	-
40	305	320	310	295	280	255	225	190	150	-	-	-
45	360	380	370	360	340	315	285	255	210	165	-	-
50	425	455	450	435	415	390	360	330	285	240	185	-
55	495	530	520	505	490	460	435	400	355	315	255	205
60	570	605	595	585	565	540	510	475	435	390	335	280
65	645	670	690	675	660	630	605	570	525	485	425	375
70	730	785	775	765	745	720	690	660	615	570	515	460
75	820	880	870	855	840	810	785	750	705	660	605	550
												495

Sign designations

The first letter of the sign designation is used to classify the sign series. Examples include Regulatory ("R"), Warning ("W"), and Information ("I"). Signs contained only within the NYS Supplement start with the prefix NY ahead of the sign series letter.

Signs that can be used in both a left or right orientation typically have a single alphanumeric designation in the MUTCD. As appropriate, the "R" or "L" suffix is added to specify the orientation. Figure 6 shows the two orientations for a side road intersection sign (W2-2) with the left and right orientation suffix shown below the sign.

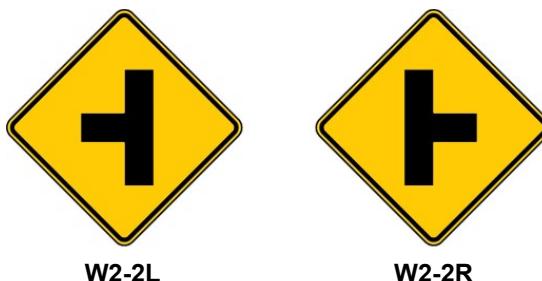


Figure 6. Right and left designation of side road (W2-2) sign

Upgrading signs

Whenever there is a change in the MUTCD, there are usually requirements for upgrading some signs to meet new requirements and regulations. Some signs and provisions have compliance dates listed in the introduction of the MUTCD. These dates must be followed. Other existing signs do not need to be replaced or upgraded unless they no longer meet a requirement in the MUTCD unless there is a compliance date requiring the sign to be replaced sooner. Even devices that need upgrading may not need to be replaced immediately. Signs that no longer function properly, however, should be replaced as soon as possible.

Existing non-conforming devices shall be brought into compliance as part of a systematic upgrading and installation of traffic control devices. Having a plan for managing the signs in the highway system is critical. Signs on roads being upgraded using Federal Aid funds shall be brought up to compliance before the project is complete.

Chapter 1

Intersections

The intersection of two or more roads, where vehicles must cross the paths of other vehicles, is a location which offers a greater potential for traffic conflict. More than half of all traffic crashes occur at intersections. This chapter covers the devices used to make these locations safer for motorists and other roadway users including bicyclists and pedestrians.

A driver should have an unobstructed view of the intersection and enough of the intersecting road to allow time to stop or slow the vehicle and avoid a collision. The minimum sight distance considered safe under various conditions is directly related to vehicle speeds and the distances traveled, once the driver sees the situation, reacts, and brakes.

Intersections of very low-volume rural roads can often operate satisfactorily under the basic rules of right-of-way for uncontrolled intersections, which are:

1. The vehicle that arrives at the intersection first has the right-of-way.
2. If two vehicles arrive at an intersection at the same time, the vehicle on the left must yield the right-of-way to the vehicle on the right.

When these basic rules are not sufficient, the intersection should be controlled. Right-of-way should be assigned at the intersection of two roads if combined traffic volumes including pedestrians, bicyclists, and vehicles exceed 2,000 vehicles per day, sight distance is restricted, approach speeds are high, or other factors cause confusion as to which vehicle has the right-of-way.

Additional warrants can be found in the MUTCD. The Vehicle and Traffic Law authorizes local authorities to use stop or yield signs and prescribes their power to do so (Articles 40 and 41, Sections 1651 and 1660).

The installation of stop or yield signs modifies the basic right-of-way rules by assigning right-of-way. The following should be considered in determining how basic right-of-way rules should be modified:

- The highway with the heavier traffic volume should be given right-of-way.
- The higher-speed traffic should be given right-of-way.
- The highway that has the appearance of being the major road should be given right-of-way.

Some intersections have unusual geometry, unexpected traffic conflicts, or both. A careful study should be conducted before a determination is made with respect to the assigned right-of-way.

The decision to use a stop or yield sign should be documented and filed for future reference.

Stop/Yield Determination

Once the assignment of right-of-way is deemed appropriate, sight distances across the intersection and the prevailing approach speeds on the intersecting highways are critical in determining whether a stop or yield sign is the correct treatment. If the driver on the minor road can see all potential traffic conflicts sufficiently to either pass through the intersection or stop safely, then a yield sign may be used instead of a stop sign. However, the following items should be kept in mind when evaluating the proper sight distance.

1. All obstructions at the intersection should be investigated. The one causing the shortest sight distance should be used for the stop/yield sign determination. Each side road approach should be evaluated separately.
2. Sight distance is measured between points 42 inches above the roadway. This is the average eye height of a driver in a passenger car.
3. If the highways intersect at an angle other than 90 degrees, the measurements for "a" and "b" should be parallel to the paths for the approaching vehicles, as shown in Figure 7.
4. Parked vehicles and seasonal changes such as snowdrifts or tall seasonal crops like corn should be kept in mind when sight obstructions are being located.
5. Many times sight distances can be improved by permanently removing brush or other obstructions from the areas adjacent to the approaches.

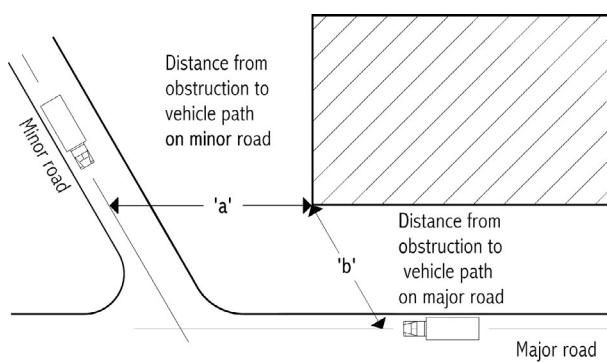


Figure 7. Yield vs Stop determination

Figure 7 and Table 3 are aids for making stop/yield determinations. They are general guides and should not take the place of an engineering study as prescribed by the MUTCD. They were developed using information from the AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads* ($ADT \leq 400$). Table 3 assumes vehicles approaching the yield sign slow down to no more than 15 mph. If this is not the case, consult the MUTCD or the AASHTO *A Policy on Geometric Design of Highway and Streets*. After making the measurements for distances 'a' and 'b', as shown in Figure 7, locate the value of 'b' in the left column of Table 3. Then in the column for the appropriate prevailing speed for the major highway, compare the measured value of 'a' with the distance shown in the column. If the measured value is greater than the Table value, then a yield sign may be used. If the measured 'a' value is equal to or less than the Table value, a stop sign should be used. When using the table and figure, remember the distances are computed for essentially level terrain. If there is a significant slope approaching the intersection, contact your local LTAP Center, or a traffic engineering consultant for assistance. Figure 2B-101 in the NYS Supplement may also be used to determine if a stop or yield sign should be used.

Table 3. Guide for stop or yield sign determination

(b = distance from center line of critical lane to closest obstruction parallel to minor road)

	Major Road Prevailing Speed						
	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH
b (feet)	a (feet) (Minimum distance to closest obstruction parallel to major road)						
10	180	225	275	325	385	445	515
15	170	215	260	305	360	420	485
20	160	200	245	290	340	395	455
25	150	190	230	270	320	370	425
30	140	175	215	250	295	345	395
35	130	165	200	235	275	320	370
40	120	150	180	215	255	295	340
45	110	135	165	195	230	270	310
50	98	125	150	180	210	245	280
55	90	110	135	160	190	220	250
60	80	100	120	140	165	195	220
65	70	85	105	125	145	170	195
70	60	75	90	105	125	145	165
75	50	60	75	85	100	120	135
80	40	50	60	70	80	90	105



R1-1

Stop signs are to be used at intersections where it has been determined that a stop is necessary. They can improve safety by assigning right-of-way and reducing the number of right-angle collisions at an intersection. However, stop signs cause substantial inconvenience and delay to motorists. Excessive use of stop signs can lead to disregard for them. Many drivers will run a stop sign, or only come to a rolling stop. Stop signs should not be used for speed control. There is some evidence that frequent stop signs may actually increase traffic speed between the signs. On roads with high traffic volumes, stop signs may also increase the number of rear-end accidents.

Stop signs are not used on an approach to an intersection when the intersecting road is controlled by another stop sign, a yield sign, or a flashing red signal. Exceptions include all-way stop controlled intersections or unusual conditions such as poor sight distance.

Stop signs shall not be used at intersections controlled by three-color traffic signals. This does not prevent using them to control separately channelized turn lanes.

LOCATION. The stop sign shall be placed on the right side of the roadway. It should be at least 6-12 feet from the edge of the intersecting roadway. It is recommended that the sign be not more than 50 feet from the near edge of the intersecting roadway. Where there is a marked crosswalk at the intersection, the sign should be about four feet (4') in advance of the crosswalk.

The stop sign needs to be visible to approaching traffic. Some steps that can increase the visibility of the sign include:

Removing vegetation

- Moving the sign to a place where it is more visible
- Installing a second stop sign on the left side of the road
- Installing an oversized stop sign
- Adding a red retroreflective sleeve on the front of the sign post
- Installing a red flashing beacon on the sign or overhead

When there is no crosswalk or stop line, place the stop sign at the location where traffic should stop before entering the intersection. If this would result in a stop sign in that location which will not be visible to approaching traffic, move the sign where it will be visible, and consider using a stop line to show drivers where to stop for a good view of opposing traffic. If visibility is restricted, a Stop Ahead (W3-1) sign shall be installed in advance of the stop sign.

Where roads intersect at a sharp angle, the stop sign should be installed so that it is clear to the traffic on the other road that it does not apply to them. It can be moved back from the intersection or angled away from traffic on the other road.

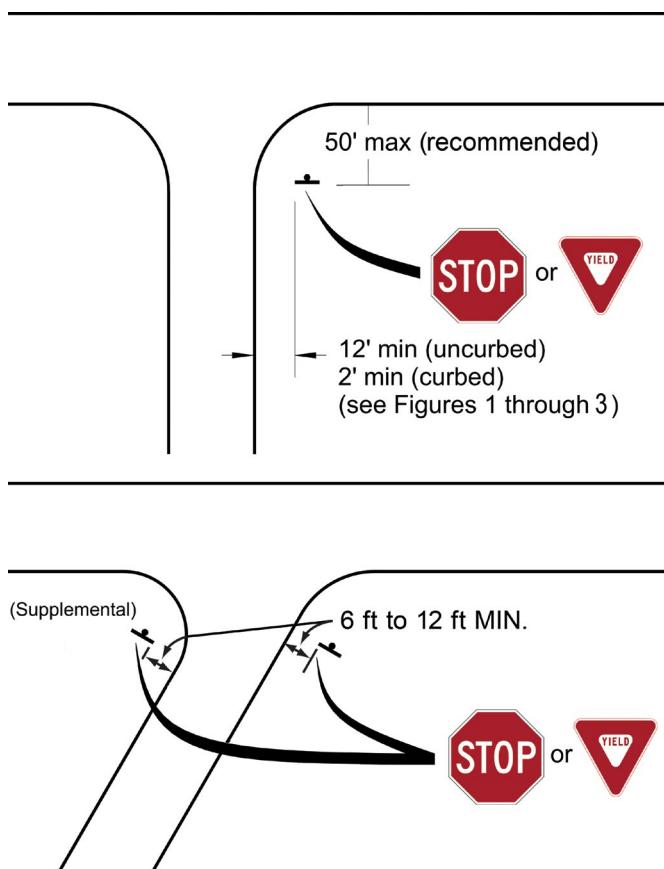


Figure 8. Placement of stop and yield signs

More than one stop sign shall not be installed on the same support. A stop sign shall not be installed on the far side of any intersection or at midblock locations.



R1-2

Yield signs are used where the basic rules for right-of-way at an intersection have been modified but where it may be unnecessary to stop.

A yield sign should not be used on an approach to an intersection when the intersecting road is controlled by another yield sign, a stop sign, or a flashing signal, except when required by unusual conditions. This will help avoid problems when drivers don't know who has the right-of-way. Yield signs shall not be used on all approaches to an intersection, or where traffic is controlled by a traffic signal except when assigning right-of-way for traffic entering a roundabout. This does not prevent their use to control separately channelized turn lanes.

LOCATION. The yield sign shall be placed on the right side of the roadway. It is recommended that the sign should not be more than 50 feet from the near edge of the intersecting roadway. Where there is a marked crosswalk at the intersection, the sign should be about four feet (4') in advance of the crosswalk.

The yield sign needs to be visible to approaching traffic. Some steps that can increase the visibility of the sign include:

- Removing vegetation
- Moving the sign to a place where it is more visible
- Installing an oversized yield sign
- Adding a second yield sign on the left side of the road

When there is no crosswalk or yield line, the yield sign should be near the location where vehicles should stop, if necessary, to yield to opposing traffic. If the yield sign in that location will not be visible to approaching traffic, place the sign where it will be visible, and consider using a yield line to show drivers where to stop, if necessary, to yield to conflicting traffic.

Where roads intersect at a sharp angle, the yield sign should be installed so that it is clear to the traffic on the other road that it does not apply to them. If necessary, it can be moved back from the intersection, or angled away from traffic on the other road.

More than one yield sign shall not be installed on the same support. A yield sign shall not be installed on the far side of any intersection, or at mid-block locations.

ALL WAY

R1-3P

All-way supplemental plaques shall be used where all approaches to an intersection are controlled by stop signs. The supplemental plaque shall be placed beneath each stop sign where all-way stop control is used. They shall not be used unless all approaches to an intersection have stop signs.

All-way stop control should not be used unless it is warranted. If the warrants contained in the MUTCD are not met, the disadvantages are likely to outweigh the benefits. Some disadvantages are increased delay to drivers, increased air and noise pollution, disrespect for stop signs, and possible increases in rear-end crashes.

All-way stop control may be warranted for the following reasons:

- As a safety measure where certain crash types occur regularly. If five or more left-turn or right-angle accidents have occurred in a twelve-month period, all-way stop control may help correct the problem at the expense of a possible increase in rear-end accidents.
- At intersections where traffic volumes meet certain minimum values. All-way stop control usually works best when all the approaches to the intersection carry similar amounts of traffic. See Section 2B.07 of the MUTCD for more information.

LOCATION. Where used, the supplemental plaque goes immediately below the stop sign on all approaches to the intersection.



W3-1

This sign is used to warn of a stop sign which is not clearly visible to approaching drivers for a sufficient distance (see Table 4, Page 31). They can also be very useful to improve safety, especially in rural areas. First, consider all measures to make the stop sign visible, such as relocating the stop sign or removing vegetation. If these measures will not get the desired results, a stop ahead sign shall be installed. This sign may also be used where stop signs are unexpected, or obedience to them is not satisfactory. The equivalent word message sign shall not be used in New York State.

LOCATION. The stop ahead sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the stop sign. To avoid confusion, the stop ahead sign should not be placed in advance of an intersection preceding the one at which the stop sign is located, if such placement can be avoided.

RETROREFLECTIVITY SYMBOL: Bold



W3-2

This sign is used to warn of a yield sign that is not clearly visible to approaching drivers for a sufficient distance (see Table 4). First, consider all measures to make the yield sign visible, such as relocating the yield sign or removing vegetation. If these measures will not get the desired results, a yield ahead sign shall be installed. This sign may also be used where yield signs are unexpected or where obedience to them is not satisfactory. The equivalent word message sign shall not be used in New York State.

LOCATION. The yield ahead sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the yield sign. To avoid confusion, the yield ahead sign should not be placed in advance of an intersection preceding the one at which the yield sign is located, if such placement can be avoided.

RETROREFLECTIVITY SYMBOL: Bold

Table 4. Visibility distances for stop or yield signs

Posted or 85th-Percentile Speed (mph)	Minimum visibility distance (ft) Level approach
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570

Note: If the stop or yield sign cannot be seen for the minimum distance shown, a W3-1 stop ahead or W3-2 yield ahead sign shall be used. This table assumes a relatively level approach to the intersection. If the approach grade is greater than 3 percent, the minimum visibility and advance posting distances should be increased or decreased accordingly. Contact your State Department of Transportation, your LTAP center, or a traffic engineering consultant for help in these situations.

**W2-6**

This sign is used to warn of a circular intersection such as a traffic circle, rotary, or roundabout, where entering traffic is normally required to yield the right-of-way.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near side of the traffic circle. A second sign is desirable in the median of a divided roadway or on the left side of a one-way road.

RETROREFLECTIVITY SYMBOL: Bold



W2-1



W2-2L



W2-2R



W2-4



W2-3L



W2-3R



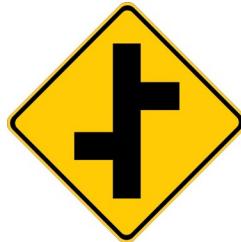
NYW2-8L



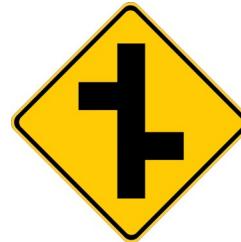
NYW2-8R



W2-5



W2-7L



W2-7R

W2-1 through W2-7 & NYW2-8 intersection warning signs

These signs are used to warn traffic on the major approach of a significant intersection ahead. They are usually unnecessary where sight distance is good, in residential or business districts, or on highways where intersections are frequent and to be expected. Crash rates or other factors, such as unusual layout, may indicate the need to alert approaching drivers of the presence of an intersection. Good judgment should prevail in determining the need for intersection warning signs.

Use should be limited to intersections which are not visible to approaching traffic for a sufficient distance (see Table 5) or which otherwise require motorists to exercise more caution than is usual.

These signs, except the W2-4 “T intersection” sign, should not be used on approaches to stop signs, yield signs, flashing red signals, or traffic control signals. Use the appropriate stop ahead, yield ahead, or signal ahead sign instead.

The particular sign used should be that which best depicts the intersection. The legend is intended only as a symbolic representation. In all cases, the vertical line represents the highway on which the sign is posted.

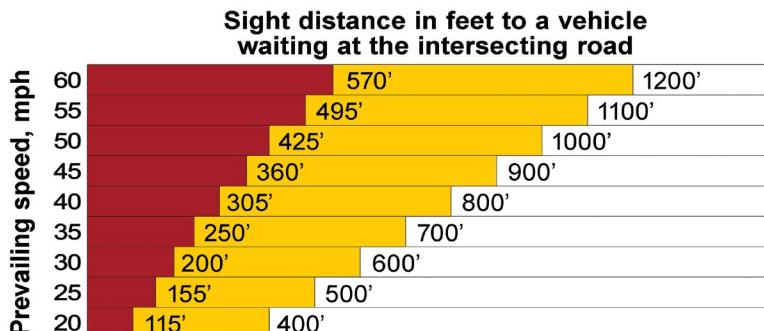
The W2-7 signs are used where two roads intersect from opposite sides and the distance between the two intersections is between 30 and 250 feet. Where the distance is less than 30 feet, the W2-1 sign may be used. Where the separation is more than 250 feet, the intersections should be considered independently and, if appropriate, signed separately. A W10-1 combination intersection/curve sign may be more appropriate if a curve occurs at the intersection.

Where there is insufficient sight distance of the intersection for an approaching motorist, an advisory speed plaque (W13-1P, Page 44) with a speed value determined from the available sight distance is a proven safety measure. An advance street name plaque (Black on Yellow, see Section 2C.58 in the MUTCD) may be installed above or below the intersection warning sign.

LOCATION. Intersection warning signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near (approach) side of the intersecting road.

An intersection warning sign should not be placed in advance of another intersection before the one to which it applies. This may require substantial adjustment in advance posting distances.

RETROREFLECTIVITY SYMBOL: Bold

Table 5. Guide for intersection warning sign use

Red area: an intersection sign should be used.

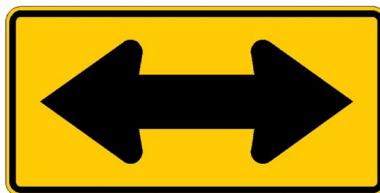
Yellow area: an intersection sign may be used.

White area: an intersection sign would not normally be used, but may be used if other factors warrant it.

Notes: The divisions in Table 5 are as follows:

- Critical distance (Red): Sight distance less than stopping sight distance for vehicles on main road.
- Adequate sight distance (White): Sight distance is greater than the typical turning movement sight distance for trucks and the minimum passing sight distance from the MUTCD.

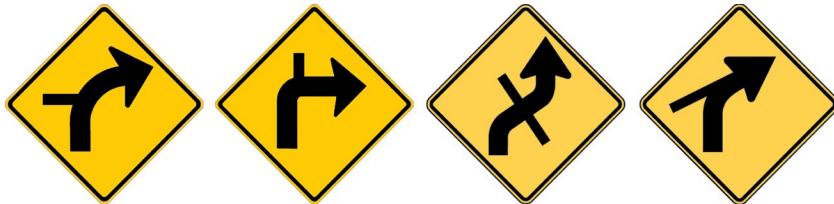
The table assumes a relatively level intersection. Appropriate distances should be increased or decreased as grades and prevailing speeds warrant.

**W1-7**

This sign is used to warn that traffic must turn either left or right. This sign may be used at a "T" intersection where the road forming the top of the "T" is two-way (see Figure 9, page 36). Double arrow signs are used when there is evidence of problems with vehicles driving through the intersection, limited sight distance on the approach, or other unusual conditions or geometry indicate the need for this sign.

LOCATION. Where used, it shall be placed on the far side of the "T" intersection in line with and facing traffic approaching on the stem.

RETROREFLECTIVITY SYMBOL: Bold



W1-10 Series(Additional configurations are possible)

This sign is used to combine an intersection and curve sign. Only single curves or turns (W1-1 or W1-2) or reverse curves (W1-4) should be signed using this new sign. At most, two intersecting roads may be indicated. This includes a cross intersection or two intersections on the same side of the highway. The minimum size of the sign is 36 by 36 inches. If the sign appears to be confusing, place separate signs for the intersection and the curve.

LOCATION. To establish the advance posting distance, determine the advance posting distance based upon the more critical of the intersection and the curve advance posting distances.

- The intersection advance posting distance assumes a vehicle may have to stop to a deceleration speed of 0 mph and is based upon the distance to the near edge of the roadway.
- The curve advance posting is based upon the advisory speed around the curve and is located from the beginning of the curve. An advisory plate is required if the advisory speed is less than the posted speed.
- Generally the placement is based upon which posting location would be passed first for oncoming traffic.

The type of sign (curve or turn) and any advisory speed plaque should be determined using a ball bank indicator (see Chapter 2).



NYW5-16, NYW5-17 (Other words may be used)

These signs are used to supplement certain intersection signs where it is necessary to warn of driveway entrances or crossings. A driveway entrance assembly is the appropriate intersection sign, supplemented with a NYW5-16 or NYW5-17 sign.

The NYW5-16 sign is for single-line legends such as: "Driveway," "Driveways," "Hospital," "Park", "Plant," "Trucks," etc. The NYW5-17 sign is for legends that require two lines, such as: "Fire House" or "Shopping Center". The NYW5-16 or NYW5-17 sign shall not be used alone.

A driveway entrance assembly should be used only where sight distance is critically limited and approaching drivers would not be expecting a traffic conflict. Where a series of driveways requires warning, a driveway entrance assembly should be used only in advance of the first driveway in the series. However, a plural legend (for example, "driveways" instead of "driveway") may be used.

Alternative warning signs that may be more applicable can be found in the MUTCD. Some examples are also provided in Chapter 7: Crossing Hazards.

LOCATION. The supplemental plaque goes directly beneath the sign it supplements.



Figure 9. Use of intersection signs

Note: The above figure is for illustrative purposes only. Actual signs, colors and sizes may vary. Be sure to review each sign carefully before installing.

Chapter 2

Turns and Curves

Turn and curve warning signs are used to inform drivers of unexpected bends or curves in the road. Three factors are considered when determining if a sign is needed at a particular location, and which sign or signs should be used (see Table 6, page 38)

The first factor is the "approach speed." This is either the speed limit or the speed at which vehicles normally travel on the road immediately before the curve. The normal travel speed is the "prevailing speed" (see page 19) on the approach roadway.

The second factor is the maximum speed at which the curve can be traveled safely and comfortably. This speed, rounded down to the nearest 5 mph, is called the "advisory speed."

If the advisory speed is more than 5 mph greater than the legal speed limit, turn or curve signs normally should not be used. For lower advisory speeds, a turn or curve warning sign should be used. For arterials and collectors with an Annual Average Daily Traffic (AADT) greater than 1,000, if the difference between the advisory speed and the speed limit is 10 or more mph, a turn or curve sign shall be used. They are recommended on all other highways. On turn and curve signs, an advisory speed plaque (W13-1P) shall be used when an engineering study recommends notifying the traveling public of an advisory speed. Always use an advisory speed plaque when the recommended speed is less than the legal speed limit. An advisory speed plaque shall not be used if the advisory speed is more than the speed limit.

The third factor is the presence of closely spaced curves immediately after the first curve. This may dictate the use of reverse turn (W1-3L or W1-3R), reverse curve (W1-4L or W1-4R), or winding road signs (W1-5L, or W1-5R).

For single curves, if the advisory speed is 30 mph or less, W1-1 turn signs are used. If the advisory speed is greater than or equal to 35 mph, W1-2 curve signs are used.

Advance posting distances for curve signs are based upon the approach speed and the advisory speed of the condition. Advance posting distance should be measured from the beginning of the individual curve, curve combination, or curve series.

A curve sign can be misleading if it is located on a preceding curve, particularly when that curve is opposite in direction to the curve shown on the sign.

Where possible, the curve sign should not be placed on or before a preceding curve. If this is unavoidable, consider using reverse turn (W1-3L or W1-3R), reverse curve (W1-4L or W1-4R), or winding road signs (W1-5L, or W1-5R).

Table 6. Horizontal alignment sign usage

# of curves	Advisory Speed (mph)	
	Less than or equal to 30 mph	Greater than or equal to 35 mph
1	W1-1  L R	W1-2  L R
2	W1-3  L R	W1-4  L R
3 or more	W1-5  R	 R

Advisory speed determination

The advisory speed for a curve can be determined by a ball bank indicator, also known as a slope meter (see Figure 10, page 39). The ball bank indicator will give results that provide an ample margin of safety against skidding. The ball bank indicator should be mounted in a standard passenger car. Sports cars and trucks should not be used because their stiff suspensions may adversely affect the results.

Advisory speed measurements should be made on dry pavement. Consider each direction separately.

First, load the car as it will be when speed measurements are taken. Park the vehicle on level ground, and make sure the ball is at zero. Two persons will be needed: a driver and an observer.



Figure 10. Ball bank indicator

The MUTCD uses the following ball bank readings for the determination of a recommended curve advisory speed:

Table 7. Recommended ball bank indicator readings

Traveling Speed (mph)	Maximum Ball Bank Reading (Degrees)
20 mph or less	16°
25 to 30 mph	14°
35 mph or more	12°

The driver should keep the car centered in the lane, avoid driving towards the inside of the curve, and maintain a constant speed through the curve. An observer watches the ball, and records its highest deflection. Make several passes through the curve, increasing the speed with each pass, until the maximum allowable deflection is reached. Round this speed down to the nearest five (5) mph increment. This is the advisory speed for the curve.

If a ball bank indicator is not readily available, contact the New York State Department of Transportation office for your region. They have access to the proper equipment.

The MUTCD also has information on other methods for determination of the advisory speed. See Section 2C.08 of the MUTCD for more information. How the advisory speed was determined must be documented.

Advisory speed plaques (W13-1P) shall supplement curve signs where the advisory speed is less than the legal speed limit. Where the advisory speed is greater than the legal speed limit, an advisory speed sign shall not be used.



W1-1L



W1-1R

W1-1L and W1-1R signs are used to warn of a single curve with an advisory speed of 30 mph or less.

LOCATION. Advance posting distance is based upon the combination of advisory and approach speed (Table 2, page 20). Distance should be measured from the beginning of the curve.

RETROREFLECTIVITY SYMBOL: Bold



W1-2L



W1-2R

W1-2L and W1-2R signs are used to warn of a single curve with an advisory speed of 35 mph or more.

LOCATION. Advance posting distance is based upon the combination of advisory and approach speed (Table 2, page 20). Distance should be measured from the beginning of the curve.

RETROREFLECTIVITY SYMBOL: Bold

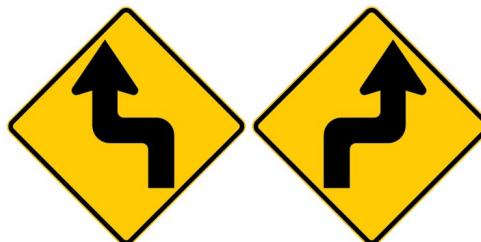
Signing for multiple curves

Two curves in the same direction (both right-handed or left-handed) separated by less than 200 ft of straight road may be considered a single curve. The lower advisory speed of the two curves should be used. However, separate signing of the individual curves is preferable where the first curve is long and has an advisory speed higher than the second. Curves in the same direction separated by 200 ft or more shall be signed separately.

If two curves in opposite directions are separated by less than 600 ft of straight road, they may be signed using a reverse curve (W1-3) or turn

sign (W1-4). The lower advisory speed of the two curves should be used. If the first curve is long and has an advisory speed higher than the second curve, the curves should be signed separately. Two curves in opposite direction separated by 600 ft or more shall be signed separately.

Where the lower advisory speed of the two curves is 30 mph or slower, a W1-3L or W1-3R sign shall be used. Where the lower advisory speed is 35 mph or higher, a W1-4L or W1-4R sign shall be used.



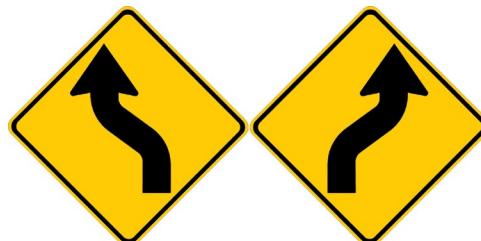
W1-3L

W1-3R

These signs are used to warn of two curves in opposite directions where the advisory speed of the slower curve is 30 mph or less. If the two curves are separated by more than 600 ft of straight road, they shall be signed separately.

LOCATION. Advance posting distance is based upon the combination of advisory and approach speed (Table 2, page 20). Distance should be measured from the beginning of the first curve.

RETROREFLECTIVITY SYMBOL: Bold



W1-4L

W1-4R

These signs are used to warn of two curves in opposite directions where the advisory speed of both curves is 35 mph or more. If the two curves are separated by more than 600 ft of straight road, they shall be signed separately.

LOCATION. Advance posting distance is based upon the combination of advisory and approach speed (Table 2, page 20). Distance should be measured from the beginning of the first curve.

RETROREFLECTIVITY SYMBOL: Bold



W1-5L



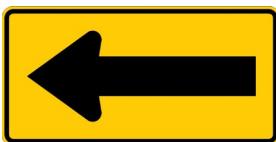
W1-5R

These signs are used to warn of a series of three or more curves, generally alternating in direction, separated by less than 600 ft of straight road. The advisory speed for the series should be the speed for the slowest curve in the series. Where there are four or more curves in the series, a single W1-5 sign with a supplemental plaque showing NEXT XX MILES before the start of the series may be adequate.

Use the W1-5L sign where the first curve is to the left and the W1-5R sign where the first curve is to the right. Within the series, appropriate W1-1 or W1-2 signs may be used for individual curves.

LOCATION. Advance posting distance is based upon the combination of advisory and approach speed (Table 2, page 20). Distance should be measured from the beginning of the first curve.

RETROREFLECTIVITY SYMBOL: Bold



W1-6L



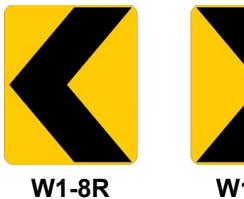
W1-6R

These signs are used where there is evidence that drivers are having difficulty negotiating curves, and are used in conjunction with curve signs. They can also be used in highway work zones to emphasize alignment shifts. When used for this purpose, they should have orange backgrounds. If the difference between the advisory speed and speed limit is 15 mph or more, arrows or chevrons shall be used on arterials and collectors with more than 1,000 AADT. On roads classified as local, and arterials and collectors with less than 1,000 AADT, arrows or chevrons may be used if engineering judgment dictates there is a need.

LOCATION. When used at curves, these signs shall be placed on the outside of the curve in line with and facing traffic. If the difference between the advisory speed and speed limit is 15 mph or more, arrows or chevrons shall be used. If possible, they should be visible for at least 500 ft.

Additional signs may be desirable along the outside of long curves.

RETROREFLECTIVITY SYMBOL: Bold



These signs are used to provide additional emphasis and guidance at changes in horizontal alignment. Chevrons are typically used to guide motorists through longer curves. A group of Chevrons should not be used as a single visual target to traffic approaching on a long tangent; the Large Arrow is used for this purpose. These signs can also be used in highway work zones. When used for this purpose, they should have orange backgrounds.

LOCATION. When used at curves, at least two W1-8L or W1-8R signs shall be placed on the outside of the curve. If the difference between the advisory speed and speed limit is 15 mph or more, arrows or chevrons shall be used. The first should be in line with, and facing, approaching traffic. Additional signs should be suitably placed along the curve so that at least two and preferably three are always visible throughout the curve. If possible, each sign should be visible for at least 500 ft. If the difference between the advisory speed and speed limit is 15 mph or more, arrows or chevrons shall be used. Table 2C-6 in the MUTCD shows typical spacing of chevrons for various advisory speeds (see Table 8 below).

RETROREFLECTIVITY SYMBOL: Bold

Table 8. Spacing of Chevron Alignment Signs on Horizontal Curves
(source: Table 2C-6 from the MUTCD)

Advisory Speed	Curve Radius	Typical Sign Spacing
15 mph or less	Less than 200 feet	40 feet
20 to 30 mph	200 to 400 feet	80 feet
35 to 45 mph	401 to 700 feet	120 feet
50 to 60 mph	701 to 1,250 feet	160 feet
More than 60 mph	More than 1,250 feet	200 feet

Note: The relationship between the curve radius and the advisory speed shown in this table should not be used to determine the advisory speed.

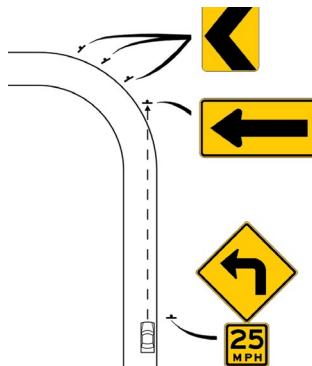


Figure 11. Use of curve, arrow, and chevron signs

Note: Arrow or chevrons shall be used if the difference between the advisory speed and the speed limit is 15 mph or more on arterials and collectors with more than 1,000 AADT. On roads classified as local and arterials and collectors with less than 1,000 AADT, arrows or chevrons may be used if engineering judgment dictates there is a need.



W13-1P

This plaque is used to supplement certain warning signs where an advisory speed is appropriate.

Advisory speeds should be realistic for the conditions. Posting an unrealistically low advisory speed to emphasize a warning sign is poor practice and is generally ineffective. Where added emphasis is needed, other means should be used, such as larger signs or supplemental flashing beacons.

When the advisory speed is less than the legal speed limit, the W13-1P plaque should be used on curve signs. It shall be used where an engineering study indicates the need to advise the traveling public. It should not be used where the advisory speed exceeds the legal speed limit.

The W13-1P plaque may be used to supplement any warning sign to indicate the advisory condition. The size of the plaque depends upon the size of the sign it supplements (see Table 9, Page 66). The W13-1P plaque shall not be used alone! Speeds shown on W13-1P plaques shall be in multiples of five mph.

LOCATION. It shall be posted immediately beneath the warning sign it supplements.

Chapter 3

Bridges and Culverts

Bridges and culverts that are narrower than the approach roadway or have weight restrictions violate the drivers' expectations and can cause unsafe conditions. It is necessary to provide drivers with sufficient information to safely negotiate the narrowed roadway, low clearance, or weight restrictions of a bridge or culvert.

State law requires that motorists be given notice of:

WEIGHT LIMITS: Vehicle and Traffic Law sections 1621(b), 1640(c), 1650(b), and 1660(a); and

LOW CLEARANCES: Vehicle and Traffic Law sections 1621(c), 1640(d), 1650(c) and 1660(c).



R12-1

This sign shall be used to indicate the safe capacity of bridges or elevated structures. It shall also be used on highway sections where an order, ordinance, rule, or regulation prohibits vehicles in excess of a designated gross weight.

LOCATION. The R12-1 sign shall be placed at or immediately before the bridge or highway section that has a restricted weight limit (see Figure 12, page 46).



NYW3-19

This sign is used to warn of bridges which are posted with weight limits. Signs more than 1,000 ft from the bridge should be supplemented with a W16-2 or W16-3 distance plaque (page 66) stating the distance to the bridge.

This sign should not be used on intersecting roads. It should be placed at locations where traffic can detour or conveniently turn around.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near end of the bridge. Additional signs should be placed where traffic can detour or conveniently turn around.

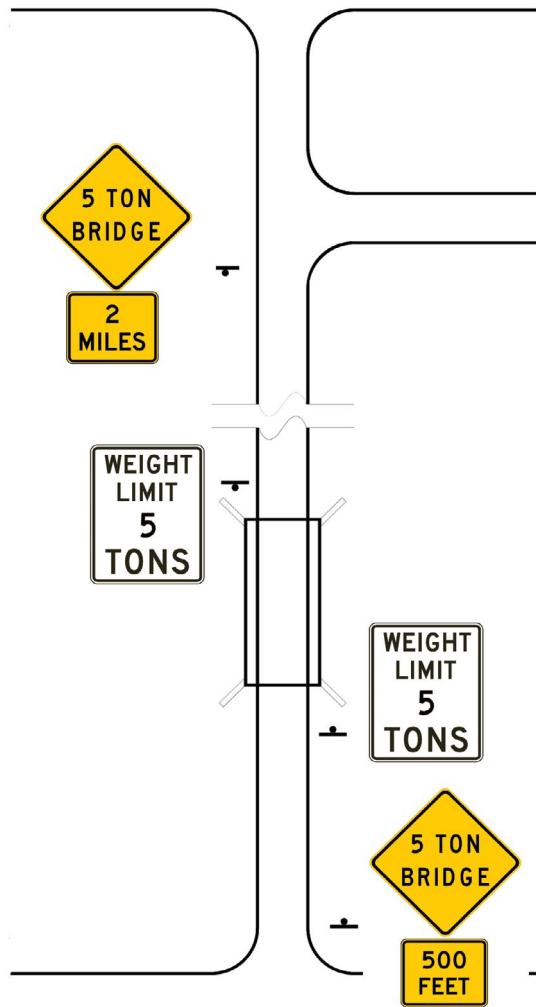
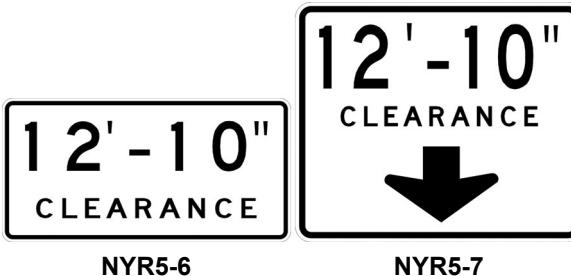


Figure 12. Location of weight limit signs



These signs are used to indicate legal overhead clearances at bridges. The Vehicle and Traffic Law requires posting when the measured overhead clearance is less than 14 ft and defines legal clearance as 1 ft less than the actual clearance. The NYR5-6 sign is used when the clearance is essentially constant. The NYR5-7 sign is used for arch bridges and other locations where the clearance varies from one lane to another.

The clearance stated on the sign shall be the legal clearance in feet and inches to the nearest whole inch.

LOCATION. The NYR5-6 sign shall be placed on or immediately in advance of the bridge or elevated structure. The NYR5-7 sign shall be mounted over the lane to which it applies.



W12-2

This sign provides advance warning of overhead bridges or structures that are posted with low clearance signs. It should be used on the immediate approach to the bridge. Additional signs should be located where traffic can detour or turn around conveniently. Signs more than 1,000 ft from the structure should be supplemented with distance plaques (W16-2 or W16-3) stating the distance to the structure. This sign should not be used on intersecting roads. The clearance stated shall be the same as that on the NYR5-6 or NYR5-7 sign.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near end of the bridge. Additional signs should be placed where traffic can detour or conveniently turn around.



W5-2

The W5-2 sign should be used where any of the following pavement width conditions exist on a bridge:

- A two-lane, two-way bridge with a roadway 16 to 18 ft wide
- Any bridge with a roadway width less than the width of the approach roadway

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near end of the bridge.



W5-3

The W5-3 sign should be used on two-lane, two-way roads to warn of one lane bridges or culverts where traffic must alternate one way at a time. It should also be used to warn of two-lane, two-way bridges or culverts on which the traveled way is less than 16 ft wide. It should also be used where the traveled way is less than 18 ft with a large percentage of commercial traffic or where the sight distance is limited.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near end of the bridge.



OM3-L and OM3-R object markers are used to mark obstructions close to the roadway or shoulder, such as underpass piers, bridge abutments, and headwalls. OM3-L marker is placed to the left of traffic. The OM3-R marker is placed to the right of traffic. The stripes on these signs shall slope downward toward traffic at approximately 45 degrees.

LOCATION. These markers should be placed with the near edge of the marker in line with the edge or portion of the obstruction closest to traffic.

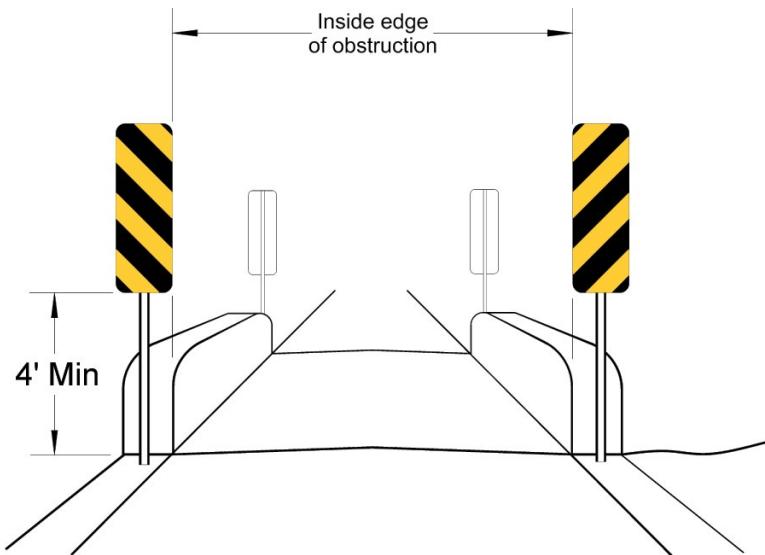


Figure 13. Placement of OM3-L and OM3-R object markers

Chapter 4

Railroad Grade Crossings

The purpose of traffic control systems at railroad-highway grade crossings is to permit safe and efficient operation of rail and highway traffic over such grade crossings. They provide appropriate information and sufficient time for roadway users to make relatively uncomplicated decisions that will allow them to pass safely over the crossing.

Various signals, signs, and pavement markings are used to convey traffic control messages at railroad crossings. The types, purpose, and application of these devices are discussed in this part of the Handbook. The uniform application of standard devices is essential. To ensure the safe operation of a traffic control system at a railroad highway grade crossing, it is important that each traffic control device look the same, have the same meaning, and be applied in the same manner, regardless of which highway agency or railroad company installs or maintains it.

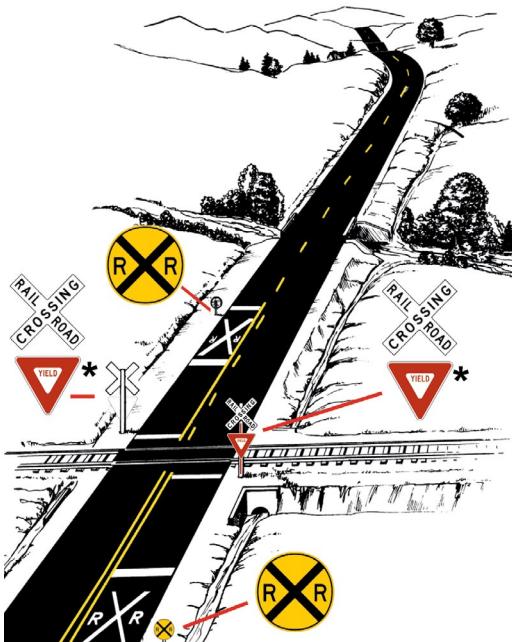


Figure 14. Railroad crossing signs and markings

* A stop (R1-1) or yield (R2-1) sign is required at any passive crossing.

Local government is responsible only for the W10-1 advance warning signs and, if appropriate, pavement markings. Railroad crossing devices such as flashing light signals, automatic gates, crossbuck signs, stop or yield

signs, and retroreflective stripes are the responsibility of the railroad owner. If the need for additional protection becomes evident, notify the New York State Department of Transportation Regional Director in writing.

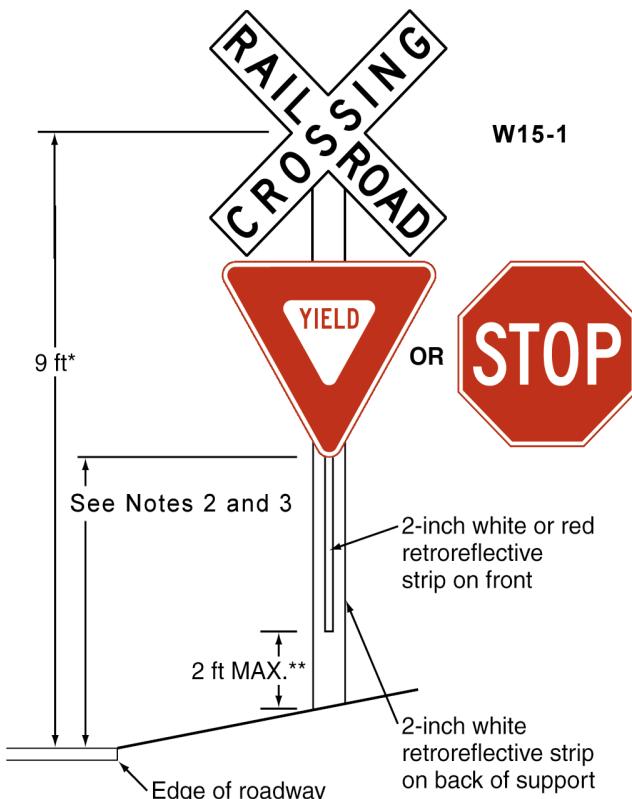


Figure 15. Crossbuck assembly with a YIELD or STOP sign on the crossbuck sign support

(source: Figure 8B-2 from the MUTCD)

Notes:

* Height may be varied as required by local conditions and may be increased to accommodate signs mounted below the Crossbuck sign.

** Measured to the ground level at the base of the support.

1. YIELD or STOP signs are used only at passive crossings. A STOP sign is used only if an engineering study determines that it is appropriate for that particular approach.
2. Mounting height shall be at least 4 feet for installations of YIELD or STOP signs on existing Crossbuck sign supports.
3. Mounting height shall be at least 7 feet for new installations in areas with pedestrian movements or parking.

The railroad is responsible for the installation and maintenance of this sign. Section 53 of the Railroad Law requires that it be placed at all railroad-highway grade crossings, except where the Department of Transportation has authorized its omission or a different installation. The assembly shown shall be

used at all passive crossings (those without lights and/or gates). The yield or stop sign may be placed on a separate post if conditions warrant. More details on the use of the assembly can be found in section 8B.04 of the MUTCD.



W10-1

This sign is required by Section 53-a of the Railroad Law, which specifies that authorities maintaining a highway that crosses a railroad at grade shall install and maintain a warning sign in advance of the crossing. The law also specifies that the Department of Transportation may authorize the omission of this sign where its installation is deemed infeasible.

LOCATION. Railroad crossing warning signs assume a deceleration speed of 0 mph (stopped). Advance posting distance should be measured from a point at least 15 ft from the nearest rail of the crossing. This location corresponds to the location of a stop line, if used.

Railroad crossing pavement markings

Railroad crossing pavement markings provide additional warning of railroad grade crossings. Railroad crossing pavement markings shall be used at railroad grade crossings when one or more of the following conditions are present:

- Crossings with railroad crossing gates or signals
- Crossings where the prevailing approach speed on the highway is 40 mph or higher
- Other locations where significant conflicts could occur between trains and motor vehicles

LOCATION AND LAYOUT. The locations and layout of railroad markings are shown in Figure 16 (page 54).

A portion of the X symbol on the pavement should be directly opposite the Advance Warning Sign (W10-1). Where conditions require, this distance may be shortened, but should not be less than 50 ft from the stop line.

Where there is no railroad crossing gate, the stop line, if used, should be perpendicular to the roadway, and 15 ft from the nearest rail at its closest point. Where there is a gate, the stop line should be parallel to the gate, in its lowered position, and either 15 ft from the nearest rail or 8 ft from the gate, whichever places the line farther from the crossing.

If pavement markings are used on two lane roads, passing shall be prohibited in advance of railroad grade crossings. Exact dimensions and details on the markings can be found in Chapter 8B of the MUTCD.

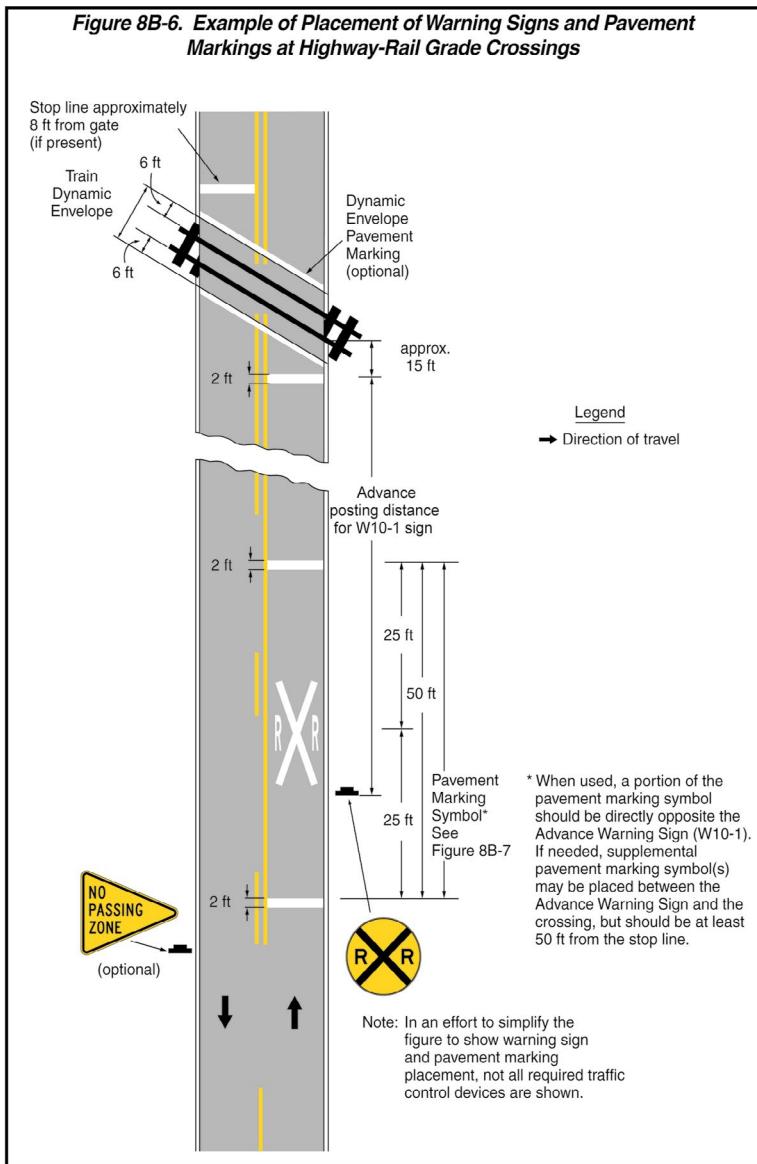


Figure 16. Railroad grade crossing pavement markings
(edited version of Figure 8B-6 from the National MUTCD)

Chapter 5

Roadway Conditions

This section deals with signs that warn motorists of unexpected obstacles which may impede or prevent the use of a section of roadway. These signs may be of a temporary nature, such as the road may flood sign, or permanent, such as hill signs and dead end signs.

Temporary roadway condition signs should be promptly removed when the condition that required their use no longer exists. This encourages the motorist to pay strict attention to this type of warning sign. Do not tell drivers to expect a hazard that is not there! If you do, they may not believe other warning signs.



R11-2 (Road)



R11-2 (Bridge)

These signs shall be used where a roadway or bridge is closed to all traffic except maintenance or construction equipment and officially authorized vehicles. They shall not be used where vehicular traffic is permitted beyond the sign. These signs should be placed on a Type III (three-rail) barricade in the roadway (see Figure 17). Section 104 of the Highway Law requires the posting of signs and provisions of barricades and lights when a road is closed.

These signs shall be preceded by the Advance Road Closed (W20-3) or Advance Bridge Closed (NYW8-4) warning sign (page 83) with the secondary legend AHEAD or appropriate distance, or, if applicable, an Advance Detour (W20-2) warning sign (page 83).

LOCATION. At the point of closure.



R11-3a (Road)



R11-3b (Bridge)

These signs shall be used where a bridge or highway section is closed some distance ahead, and traffic can continue on the highway to the point of closure.

The words ROAD CLOSED and BRIDGE OUT are all acceptable.

- Distances less than 1 mile should be stated to the nearest quarter mile
- Distances between 1 and 3 miles should be stated to the nearest half mile
- Distances more than 3 miles should be to the nearest whole mile

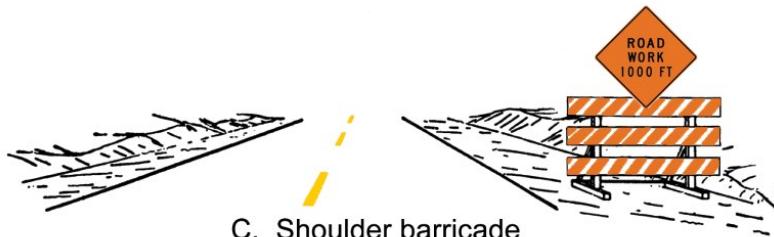
LOCATION. These signs should be placed at the intersection where traffic must detour to reach points beyond the closed bridge or highway section. The sign should be placed on a Type III barricade in the roadway immediately beyond the intersection (see Figure 17). Where use of a barricade would leave insufficient travel width for local traffic, the sign should be placed on the right side of the roadway, just beyond the intersection.



A. Partial barricade



B. Road closed barricade



C. Shoulder barricade

Figure 17. Signs on barricades

**NYR8-10**

This sign shall be used to post highways that have been designated as seasonal limited use highways in accordance with Section 205-a of the Highway Law. Where the signs are installed on a seasonal basis, they should be displayed for a reasonable period of time before maintenance is discontinued, and should remain in place until it is resumed.

LOCATION. This sign should be placed on the right side of the highway facing approaching traffic at each end of the designated section. Additional signs should be placed in both directions on the designated highway immediately beyond intersections with non-designated highways.

**NYW4-16**

This sign is used to warn travelers that the road they are on receives a lower than normal level of maintenance.

The standards for maintaining minimum maintenance roads are found in the Local Roads Research and Coordination Council's publication Guidelines for Rural Town and County Roads. The Guidelines may also be obtained from the Cornell Local Roads Program. The Guidelines must be formally adopted by the municipality before installing minimum maintenance roads signs.

This sign should only be used where the following conditions are met:

- The road is in a rural area
- The average traffic volume is no more than fifty vehicles per day
- Road principally serves access to agricultural and/or recreational lands
- There is no year-round residence or business on the road when the road is designated as a minimum maintenance road

W7-3a mileage plaques (Page 63) may supplement the NYW4-16 sign, where the length of the minimum maintenance road is 1,000 ft or more.

LOCATION. The NYW4-16 sign should be placed at each end of the minimum maintenance section facing approaching traffic. Additional signs should be placed just past intersecting roads. If the minimum maintenance road is over 2 miles long, signs should be added so that the NYW4-16 signs are no more than 2 miles apart.

Note: A road may be designated as being either seasonal limited use or minimum maintenance, but it shall not be designated as both.



These signs should be used where it has been determined that a downgrade requires advance warning. Basic considerations in determining the need for hill signs are:

- The relative length and severity of the downgrade
- Crash experience
- Curves, intersections, traffic control devices and area characteristics on and immediately beyond the downgrade
- Section 2C.16 of the MUTCD

Hill signs may be justified for the entire downgrade, or for only a portion of it. For example, in a location where a gentle grade becomes steeper, the hill sign may be needed only for the steeper portion. If a hill flattens out and then gets steeper again, an additional hill sign may be used to inform motorists that they have not reached the bottom of the hill. On longer grades, distance plaques (W7-3aP) or combination distance/grade plaques (W7-3bP) spaced at approximately 1 mile intervals should be considered. Only one advisory plaque should be used to supplement a given steep hill sign (W7-1).

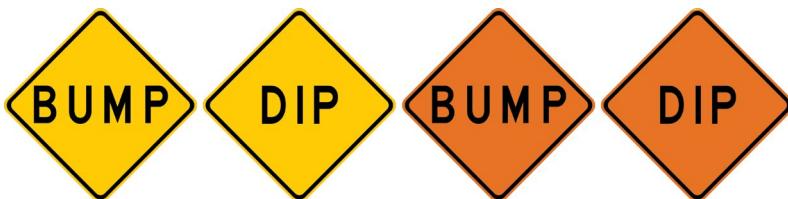
LOCATION. Place the hill sign assembly where drivers will have enough time to downshift before reaching the downgrade. As a guide when using Condition B spacing, use a minimum advance placement distance assuming a 15 mph reduction in speed is needed before reaching the downgrade.



W7-6

This sign may be used in advance of a crest vertical curve to advise road users to reduce speed as they approach and traverse the hill as only limited stopping sight distance is available. When a HILL BLOCKS VIEW sign is used, it should be supplemented by an Advisory Speed (W13-1P) plaque indicating the recommended speed for traveling over the hillcrest based on available stopping sight distance.

LOCATION. Hill Blocks View signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from first location where the sight distance is restricted.



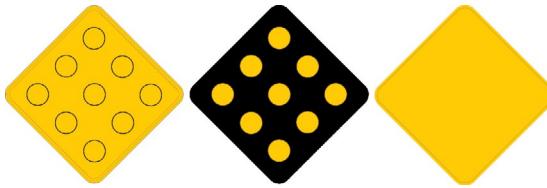
W8-1 (Bump) and W8-2 (Dip)

These signs are to warn of isolated bumps or dips in the pavement, which are abrupt enough to cause discomfort, cargo shifting, or deviation of a vehicle from the driver's intended course.

These signs may be supplemented with a W13-1 advisory speed sign. An object marker OM1-1 may be located at the bump or dip to alert the driver.

These signs should be removed as soon as the bump or dip requiring them is fixed. These signs should not be used where the rough road sign is applicable.

LOCATION. Condition B with proper combination of advisory and approach speed. The advisory speed should be one which would allow the driver to safely travel over the isolated bump or dip. Advance posting should be measured from the bump or dip.



OM1-1

OM1-2

OM1-3

The OM1-1 object marker is used to mark obstructions in the roadway. It can be used to mark the location of the bump or dip that a W8-1 or W8-2 sign refers to, and also to mark the ends of medians, raised islands, bridge piers, or other obstructions in the roadway.

LOCATION. When used to mark a bump or dip, it should be installed on the right side, or both sides, of the road next to the bump or dip. When used to mark an island, it should be as close as feasible to the approach end.



W8-3

This sign is used to warn of a change from a hard-surfaced pavement to an unpaved or earth roadway. This sign may be supplemented with a W13-1 advisory speed sign.

LOCATION. Condition B with proper combination of advisory and approach speed. The advisory speed should be one which would allow the driver to safely travel from the paved to the unpaved section. Advance posting distance should be measured from the end of the hard-surfaced pavement.



W8-8

This sign is used to warn of roadway sections containing rough or broken pavement abrupt enough to cause discomfort, cargo shifting, or deviation of a vehicle from the driver's intended course. The W8-8 sign may be supplemented with either a W13-1 advisory speed sign or, if the section is longer than 1,000 ft, a W7-3aP auxiliary mileage plaque. This sign should not be used where the bump or dip sign applies.

LOCATION. Condition B with proper combination of advisory and approach speed. The advisory speed should be one which would allow the driver to safely travel the section of rough road. Advance posting should be measured from the beginning of the rough section.



W8-5

This sign is used to warn drivers that the pavement is unusually slippery when it is wet. All pavements are usually more slippery when wet than when dry. This sign is meant to be used where the skid resistance is well below average, or an unusual number of wet-weather accidents have occurred. If the road is slippery because of ice or snow, supplemental plaques with the legend ICE may be used with the W8-5 sign to indicate the reason that the slippery conditions might be present. Other supplemental plaques may be found in the MUTCD for other conditions.

When considering the need for this sign, try to figure out what is causing the problem and correct it as soon as possible. Check for problems such as poor drainage or cross-slope, polished aggregate, or bleeding asphalt. The sign should be removed once the problem is fixed.

LOCATION. Condition B with proper combination of advisory and approach speed. The advisory speed should be one which would allow the driver to safely travel the slippery section. The posting distance should be measured from the point that the slippery pavement condition starts. On long stretches of slippery when wet pavement, W7-3aP distance supplemental plaque should be used. Additional signs should be installed at suitable locations, such as just beyond intersections.



The dead end signs (W14-1 and W14-1a) are used where drivers are required to turn around and proceed in the opposite direction. The General Municipal Law, Section 125-a, requires posting of all dead end roadways. Roadways that end at an intersection are not considered dead end.

LOCATION. There are two locations for the dead end sign to be applied.

A Dead End sign SHALL be placed on the right side of the dead end roadway just beyond the intersection. The Dead End sign shall be posted to permit the road user to avoid the dead end by turning off, if possible, at the nearest intersecting street.

One or more Dead End sign MAY be placed before the end of the road. If an agency wants to mark the end of the road itself, they should use a red diamond Object Marker OM-4 (see Page 63). The W14-1a sign may be used in combination with Street Name (D3-1) signs as shown in Figure 18. The W14-1a sign may be placed above or below the Street name sign



Figure 18. Placement of W14-1a sign with street name (D3-1) sign

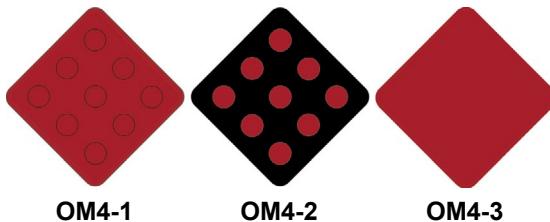


The no outlet (W14-2) sign is used at the entrance of a road network that has no other exit. Its purpose is to warn drivers that the highway cannot be used for through travel.

LOCATION. Where used, the W14-2 sign should be posted to permit the road user to avoid the isolated network by turning off, if possible, at the nearest intersecting street. The W14-2a sign may be used in combination with Street Name (D3-1) signs as shown in Figure 19. The W14-2a sign may be placed above or below the Street name sign.



Figure 19. Placement of W14-2a sign with street name (D3-1) sign



The OM4 end of road markers are used to mark the end of a dead end roadway.

LOCATION. It shall be placed at or immediately beyond the end of the roadway in line with and facing approaching traffic. . The OM4 sign shall be mounted at a height of at least 4 ft above the edge of the pavement.



W8-18

This sign is used to warn road users of a section of highway that is passable, but is covered by water which requires greatly reduced travel speed and/or obscures a significant length of pavement. Moving water has tremendous power, so this sign should only be used in limited situations. Where a roadway is, or is expected to become, impassable, it should be closed. A Depth Gauge Sign (W8-19) may be installed in addition to the Road May Flood sign to indicate the deepest depth of water along the roadway. See the MUTCD Section 2C.35 for more information.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the beginning of the section that may flood.



W8-4



W8-9



W8-23

These signs are used to warn of shoulder conditions that may adversely affect the control of vehicles driven off the roadway. The sign most appropriate for the condition should be used. The signs should be removed promptly when the condition no longer exists. These signs should be supplemented with a W7-3aP distance supplemental plaque where the shoulder condition is longer than 1,000 ft.

The Soft Shoulder (W8-4) sign may be used to warn of a soft shoulder condition as may occur at the end of winter or just after construction. The Low Shoulder (W8-9) sign is used where there is an elevation difference of less than 3 inches between the shoulder and the travel lane. The No Shoulder (W8-23) sign is used to warn road users that a shoulder does not exist along a portion of the roadway.

LOCATION. Place the shoulder condition signs where drivers will have enough time to decelerate before reaching the section of highway with the shoulder condition. As a guide when using Condition B spacing, assume a minimum advance placement distance with a 15 mph reduction in speed before reaching the area of concern. Advance posting distance should be measured from the beginning of the shoulder condition.



W8-14

These signs are used where fallen rocks or slides of soil, rock, or other material may obstruct the roadway or shoulder, or otherwise affect normal traffic flow. These signs should be removed as soon as the condition stabilizes or is corrected, and future incidents involving fallen rock are unlikely. W7-3aP auxiliary mileage plaques should be used where the affected roadway section is longer than 1,000 ft.

LOCATION. This sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting is measured from the beginning of the fallen rock or slide zone.



W16-2P



W16-3P



W7-3aP



W16-4P

The W16-2P and W16-3P plaques are used to give the distance to the condition about which the sign warns the driver. The W7-3aP and W16-4P plaques are used to indicate that the warning applies for the given distance.

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Except in work zones, the W7-3aP & W16-4P plaques should only be used with the following signs:

W1-5R and W1-5L	Winding road signs
W7-1	Hill sign
W8-8	Rough road sign
W8-5	Slippery when wet sign
W8-18	Road may flood sign
W8-4	Soft shoulder sign
W8-9	Low shoulder sign
W8-23	No shoulder sign
W8-14	Fallen rocks sign
NYW4-16	Minimum maintenance road sign
W11-3	Deer crossing sign
W11-14	Horse-drawn vehicle sign

LOCATION: The supplemental plaques are mounted directly beneath the signs they supplement. They shall never be used alone.

Table 9. Size of supplemental plaques for use with Warning signs

Size of sign being supplemented	Size of plaque			
	One line	Two lines	Arrow	Square
30" x 30" or smaller	24" x 12"	24" x 18"	24" x 12"	18" x 18"
36" x 36" or larger	30" x 18"	30" x 24"	30" x 18"	24" x 24"

Chapter 6

Schools and Children

Traffic incidents involving the injury or death of pedestrians are one of the most critical problems confronting traffic safety officials. This issue arouses more emotion and public indignation when the pedestrians are school-age children. Parents and civic leaders are persistent in their demands for more and better applications of signs, markings, signals, and crossing protection in and around school areas and other locations that attract children.

According to national statistics, pedestrians under 15 years of age have some of the highest overall accident rates. Moreover, pedestrian accidents generally are severe. Young pedestrians are more vulnerable than mature pedestrians because they lack experience and judgment in traffic situations. Added to this is a lack of perception and reading skills that can be expected of adult pedestrians.

Accident statistics further indicate that children are more often involved in non-school related accidents. This may indicate that the standard treatments prescribed for traffic control around school facilities are effective. Adherence to these uniform standards and safety provisions are apparently a contributing factor in improving the overall pedestrian accident problem in school zones.

The same fundamentals applicable to school areas are equally important near playgrounds and other areas that attract young pedestrians.

The protection of school age pedestrians is the shared responsibility of parents, school administrators, traffic officials, civic leaders, and vehicle drivers. There is little doubt that programs in the home and school to train the child as a responsible pedestrian are an important factor in improving safety.

With the 2009 National MUTCD, all warning signs associated with school buses and schools shall have a fluorescent yellow-green background.

School speed limits

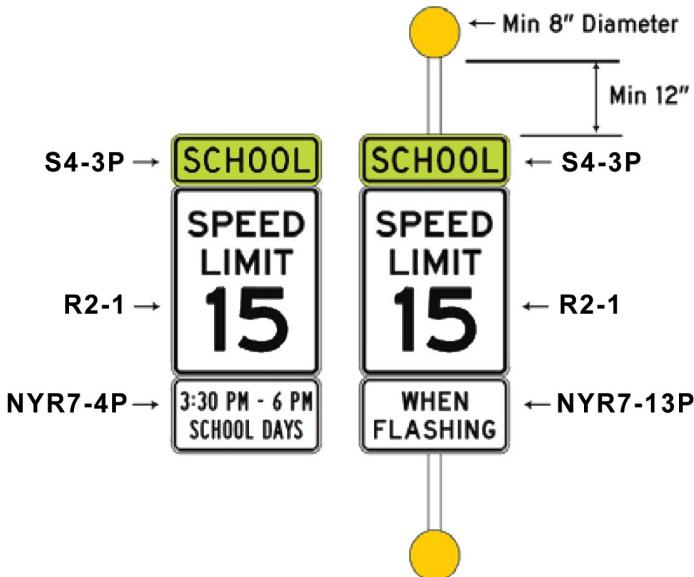
School speed limit signs shall be used to inform motorists of part-time speed regulations established in the vicinity of schools. The Vehicle and Traffic Law specifies the places where school speed limits may be established (Sections 1620, 1622-a and 1643) and the times when

the limits are in effect (Section 1180(c)). A school speed limit should be established only if all of the following conditions exist:

- The school has one or more grades below grade 12 (or a licensed child care facility in an institutional setting)
- Some of the children walk or bicycle to the school
- The zone contains a marked crosswalk
- The crosswalk is supervised
- There is no nearby traffic control signal, pedestrian overpass or underpass, or bridge suitable for pedestrian use.

The numerical value of a school speed limit should be about 10 mph less than the prevailing speed on the highway. The Vehicle and Traffic Law prohibits school speed limits less than 15 mph. A school speed zone is not to exceed one quarter mile in length according to the Vehicle & Traffic Law.

A “fines higher” plaque (R2-6P) shall be placed at the bottom of the first school speed limit assembly and an “end school speed limit” (S5-3) with the non-school speed limit shall be posted at the end of the school speed limit (See Figure 20, page 70). A School (S1-1) sign shall be installed to identify the beginning points of any designated school zone. See chapter 7 of the MUTCD for more information.



S4-3P/R2-1/NYR7-4P, S4-3P/R2-1/NYR7-13P*

*NOTE: For more information on the use of beacons, see Section 4L.04—Speed Limit Sign Beacon, in the MUTCD.

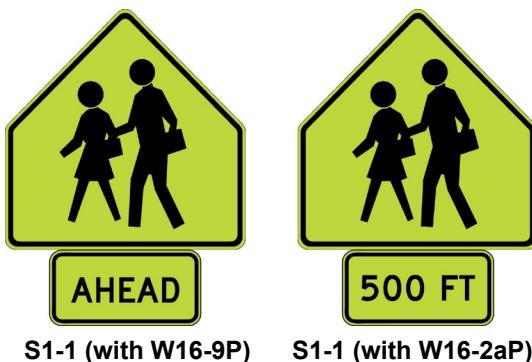
Several other configurations are possible. See the NYS Supplement, Section 7B.15.

Examples of devices that are used to post a school speed limit are:

- An R2-1 maximum speed limit sign with a S4-3P school plaque above it and an NYR7-4P supplementary regulatory plaque below it. The NYR7-4P plaque gives the times that the school zone speed limit is in effect.
- An R2-1 maximum speed limit sign and S4-3P school plaque above it and an NYR7-13P supplementary regulatory plaque below it. Above and below are flashing beacons 8 inches in diameter which are at least 12 inches from the top and bottom of the sign assembly. The NYR7-13P plaque warns the motorist of flashing beacons which operate when the school speed limit is in effect.

Blackout versions of the regulatory speed limit signs may be used in each case. The speed limit number does not show when the speed limit is not in effect in these cases.

LOCATION. School speed zones should be established at points 300 ft from the school property line or 200 ft from the first crosswalk, whichever would be encountered first by traffic. The signs should be placed at these points (see Figure 20, page 70). Locations may be slightly adjusted to meet field conditions.

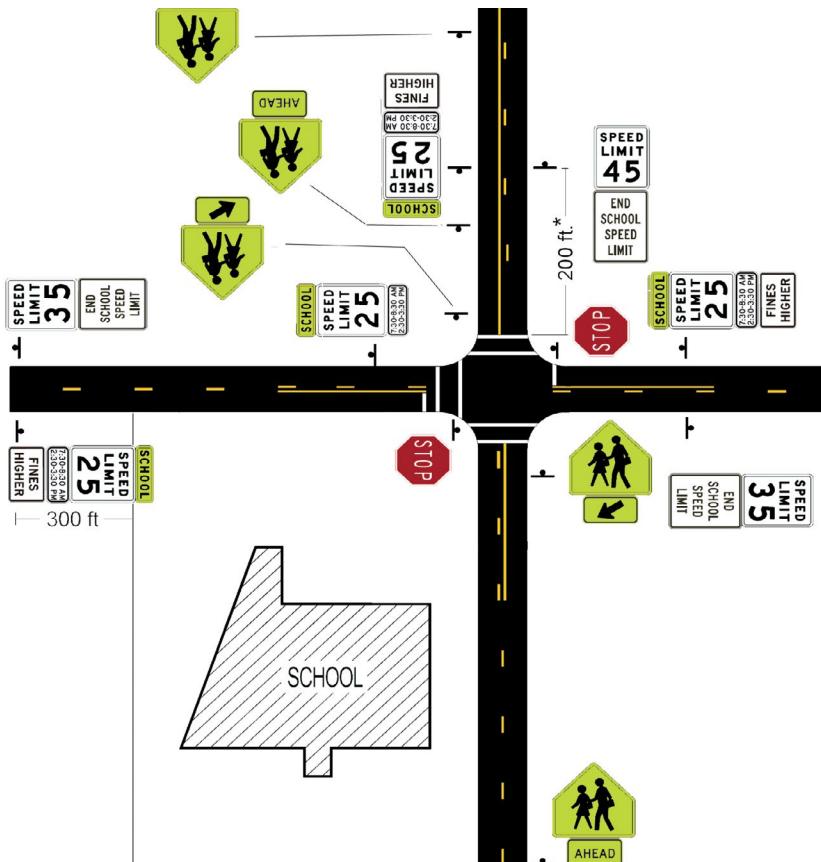


School advance warning assembly

The S1-1 sign with supplemental plaque provides advance warning of locations where school buildings or grounds are adjacent to the highway. The assembly shall be used in advance of any school crosswalk or school speed limit. The background of this sign shall be fluorescent yellow-green. With the exception of warning of an upcoming school zone, an S1-1 sign is never used without a supplemental plaque.

LOCATION. When marking a crosswalk, the sign assembly assumes deceleration to an advisory speed of 0 mph (stopped).

A S1-1 school advance warning sign shall be placed in advance of the designated school zone. The sign assumes deceleration to an advisory speed of 0 mph (stopped) from the beginning of the reduced school speed limit.



* The distance to the beginning of the school zone should begin at a point either 200 ft in advance of the school crossing or 300 ft in advance of the school property, whichever would be encountered first by traffic. The length of the school speed limit shall not be more than 1,320 ft and should be at least 400 ft in length.

A school advanced warning sign shall be placed in advance of the school zone (only 2 of four required signs shown in figure).

Figure 20. Example of school signs

**S1-1 (with W16-7P)**

The S1-1 with diagonal arrow plaque identifies crossing locations regularly used by a substantial number of school children. This sign should not be at the same location as another crossing sign. The school crosswalk warning assembly shall not be used unless preceded by a School Advance Warning Assembly. The background of this sign shall be fluorescent yellow-green.

LOCATION. The sign should be placed at or immediately in advance of the crossing.

**S3-1**

This sign is to warn of locations where school buses are not visible for an adequate distance when stopped to pick up school children. This sign is not intended for general use wherever school buses stop. It should be used only where terrain and roadway features limit approach sight distance, and it is impractical to move the school bus stop to a more visible location. The background of this sign shall be fluorescent yellow-green.

Both the need for, and the placement of, the School Bus Stop Ahead (S3-1) sign should be based upon Table 4D-2 in the MUTCD. Until the MUTCD can be consulted, a conservative value for the minimum sight distance (in feet) can be determined by taking the distance for an advisory speed of 0 mph (stopped) in Table 2 (Page 21) plus three times the speed limit in mph.

LOCATION. School bus stop ahead signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the school bus stop location.



S3-2

This sign is to warn of locations where school buses turn around. This sign is not intended for general use wherever school buses turn around. It should be used only where terrain and roadway features limit approach sight distance and it is impractical to move the school bus turn around to a more visible location. The background of this sign shall be fluorescent yellow-green.

LOCATION. School bus turn around signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the closest edge of the turn around location.



W15-1

This sign is used to inform motorists of the existence of a playground from which children might run into the highway. This sign should be limited to regularly used playgrounds next to the highway. The background of this sign may be standard yellow or fluorescent yellow-green. If used to highlight a school playground, the color shall be fluorescent yellow-green.

LOCATION. The playground sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the beginning of the playground.

Chapter 7

Crossing Hazards

This section deals with signs that warn of locations where motorists might encounter unexpected persons, animals, or vehicles crossing the road. It also alerts drivers that they may need to share the road with other types of traffic. The determining factor for use of these signs is the amount of time available for the driver to see the hazard and react properly.



W16-7P

If used as part of a crossing, warning signs shall be supplemented with a diagonal arrow (W16-7P) supplemental plaque. The size of the plaque depends upon the size of the sign it supplements (see Table 9, Page 66).

Standard yellow or fluorescent yellow-green backgrounds may be used for pedestrian signs, handicapped signs, and bicycle signs. Fluorescent yellow-green is required for school signs. The color of the W16-7P plaque shall match the sign it supplements. Fluorescent signs are highly visible during daylight, but fluorescent colors are not a substitute for reflectorization.



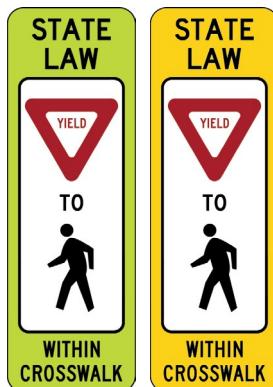
W11-2

W11-2/W16-7P

The W11-2 sign should be used only where pedestrian activity is substantial and usually unexpected, such as at a mid-block crossing or crossings in rural areas. When used with a W16-7P supplemental plaque, the assembly may be used to warn of a well-defined location, like a crosswalk.

This sign should not be used in advance of crossings where traffic is controlled by a stop sign, yield sign, flashing red signal or a traffic control signal, or on the same approach with an intersection sign.

LOCATION. When used as an advance sign to a crossing, the sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing location. The sign should be supplemented with distance plaques (W16-2P) or AHEAD (W16-9) plaques. Where it is used to warn of a section of road, posting distance should be measured from the near end of the section. When used at a crossing, the assembly should be placed at or immediately in advance of the crossing location.



R1-6

The In-street Pedestrian Crossing Sign may be used to remind drivers of the laws regarding right of way at unsignalized pedestrian crossings. They shall not be used at signalized intersections. The R1-6a Stop to Pedestrian signs shall not be used in New York State.

LOCATION. The signs should be placed in the road where they will not disrupt normal traffic flow. If there is an island, the signs should be placed on the island. If in the roadway, the sign shall be self-uprighting after an impact.



W11-9

W11-9/W16-7P

The W11-9 sign provides advance warning of crossing locations used by handicapped persons. If used in advance of a handicapped crossing, the W11-9 sign should be supplemented with an advance distance or AHEAD plaque (see page 66). This sign should not be used on the same approach as another crossing sign, or where traffic is controlled by a stop sign, a yield sign, a flashing red signal, or a traffic control signal.

LOCATION. When used in advance of a crossing, the sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing.

The W11-9 with W16-7P assembly identifies crossing locations used by handicapped persons on a regular basis. This sign should not be used on an approach that is controlled by a stop sign, yield sign, or flashing red signal.

LOCATION. Where used, the assembly should be placed at or immediately in advance of the crossing location.



W11-1

W11-1/ W16-7P

The W11-1 sign is used to provide advance warning of well-defined bicycle crossings. It is also used to alert motorists that bicycles may need to share a particular section of highway. A “Share the Road” plaque (W16-1P may be used with the W11-1 sign) in this case. As a crossing warning, the W11-1 sign should be used only where sight distance is limited or the crossing is used by an unusually large number of bicyclists.

This sign should only be displayed during periods of the year when bicycle activity is significant. It should not be used for crossings at intersections, or when another crossing sign is used for the same crossing.

LOCATION. The W11-1 sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing.

The W11-1/W16-7P assembly is used to identify crossings regularly used by bicyclists. The sign assembly should not be used unless it is preceded by a W11-1 sign. Where used, the assembly should be placed at or near the crossing location.

LOCATION. Where used, the assembly should be placed at or immediately in advance of the crossing location.



W11-6



NYW5-18



NYW5-19

These signs are used to warn of unexpected snowmobile (W11-6), motocross (NYW5-18), or ATV (NYW5-19) activity along a road. When used as part of a crossing assembly, it should only be used where sight distance is limited or a crossing is used by an unusually large number of vehicles. The sign should only be displayed during periods of the year when activity is significant. These signs should not be used for crossings at intersections or in conjunction with another crossing sign.

LOCATION. When used in advance of a crossing, the signs assume deceleration to an advisory speed of 0 mph (stopped). If used in advance of a crossing, the sign should be supplemented with an advance distance or AHEAD plaque (see page 66). Advance posting distance should be measured from the near side of the crossing. When placed to mark the actual crossing, an assembly with the sign and a W16-7P supplemental plaque should be placed just in advance of the crossing location.



W11-5

This sign is used to warn of unexpected farm vehicle activity along a given stretch of highway, an upcoming crossing of farm vehicles, or when used with a W16-7P diagonal arrow, a well-defined farm crossing or entrance where sight distance is limited. This sign should not be used for crossings or entrances at intersections, or in conjunction with another crossing sign.

LOCATION. When used in advance of a crossing, the signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing or entrance. When placed to mark the actual crossing, an assembly with the sign and a W16-7P supplemental plaque should be placed just in advance of the crossing location.

**W11-64****W11-22****W11-7****W11-7/W16-7P**

These signs are used to warn of unexpected animal activity along a given stretch of highway, an upcoming animal crossing or, when used with a W16-7P diagonal arrow, a well-defined animal crossing where sight distance is limited. This sign should not be used for crossings or entrances at intersections, or in conjunction with another crossing sign. Other animal signs are included in the MUTCD, see section 2C.50.

The W11-64 sign is used to warn of cattle.

The W11-22 sign is used to warn of wild or driven horses.

The W11-7 sign is used to warn of ridden horses. If used in advance of an equestrian crossing, the W11-7 sign should be supplemented with an advance distance or AHEAD plaque (see page 66).

These signs should not be used for crossings at intersections, or with other crossing signs at the same location. These signs should only be displayed during periods of the year when crossing activity is significant.

LOCATION. When used in advance of a crossing, the signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing or entrance. When placed to mark the actual crossing, an assembly with the sign and a W16-7P supplemental plaque should be placed just in advance of the crossing location.

**W11-3**

This sign is used to warn of reasonably well-defined locations where deer tend to cross a highway, or on roadway sections that deer randomly cross at numerous locations.

This sign should be used only after deer crossing locations or sections have been carefully determined and there is evidence, such as deer accidents or local deer sightings, indicating a need to warn motorists.

Where a deer crossing section is longer than 1,000 ft, a W7-3aP or W16-4P auxiliary distance plaque should be used.

LOCATION. The W11-3 sign assumes deceleration to an advisory speed of 0 mph (stopped). Advance posting should be measured from the near side of the deer crossing location, or the beginning of the roadway section.



W11-14

This sign is used to warn of unexpected horse-drawn vehicles activity along a given stretch of highway or an upcoming crossing of horse-drawn vehicles where sight distance is limited. This sign should not be used for crossings or entrances at intersections, or in conjunction with another crossing sign.

Generally, these signs may be placed at the beginning of areas where drivers may encounter horse-drawn vehicles travelling down the highway. Additional signs may be needed to remind users of the presence of horse-drawn vehicles. The signs, in particular, can be valuable for travellers not familiar with the area.

LOCATION. When used in advance of a crossing, the signs assume deceleration to an advisory speed of 0 mph (stopped). Advance posting distance should be measured from the near side of the crossing or entrance. When placed to mark an actual crossing, an assembly with the sign and a W16-7P supplemental plaque should be placed just in advance of the crossing location.

Chapter 8

Work Zones

This section covers signs used in maintenance, construction and utility work zones. A work zone is defined as a section of road where normal traffic operations or the permanent traffic controls have been affected by maintenance, construction or utility work. This chapter only covers the basics of work zones. For more information on how to set up a work zone, see Part 6 of the MUTCD, or a Work Zone Safety and Flagger's Handbook pocket guide available from the Cornell Local Roads Program.

Whenever work is done on or near the roadway, drivers are faced with changing and unexpected traffic conditions. These changes may be hazardous for drivers, workers, and pedestrians unless protective measures are taken.

Construction, maintenance, and utility work areas can present all highway users, including motorists, with unexpected or unusual operational situations. Because of this, special care should be taken in applying traffic control techniques in these areas.

Principles and procedures that have been shown to enhance the safety of highway users and workers in construction and maintenance work areas include:

- Traffic safety in maintenance, construction, and utility work zones should be an integral and high priority element of every project, from planning through design and construction
- Work should be planned and conducted with the safety of all roadway users kept in mind at all times. This includes motorists, pedestrians, cyclists, and workers. Remember to consider the needs of blind and mobility-handicapped pedestrians
- Traffic movement should be inhibited as little as possible
- Motorists should be guided in a clear and positive manner while approaching and traversing construction and maintenance work areas
- To ensure acceptable levels of operation, routinely inspect traffic control elements
- The maintenance of roadside safety requires constant attention during the life of the construction zone because of the potential increase in hazards

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The following list of items can be used as general guidance for those involved with work zone traffic control activities.

- To keep the motorists' respect and the agency's credibility, be honest with the public
- If work is not in progress or a hazard is not there, take down, turn, or cover signs
- If there is no need for channeling devices, remove them
- Do not tell drivers to expect a hazard that is not there. If you do, they may not believe other signs and devices used on the project
- Do not assume that drivers and pedestrians will see or recognize the workers or the hazards in the work area. Maintain traffic controls as if every driver were approaching the area for the first time

Once you understand the philosophy of good work area traffic control, explain it to your workers and assistants so they will perform their work with a minimum of exposure to traffic, watch for problems, and report any damaged or missing devices.



W21-1

This sign is used to warn of workers in or near the roadway. It is intended primarily for use in conjunction with roadside work, minor maintenance activities, and public utility operations. The sign should be displayed only while the work is underway. It should be promptly removed, covered, or faced away from traffic when work activity is stopped.

LOCATION. Where used, these signs should be placed a suitable distance in advance of the work area. The W21-1 sign assumes deceleration to an advisory speed of 0 mph (stopped). When used as part of a series, the advance posting distances in Figure 21 and Table 10 should be followed.



W20-1

These signs are the initial warning signs for a highway work zone ahead. They provide a general warning and may be followed by other, more specific, warning signs pertaining to conditions and traffic controls in the work zone. The term "AHEAD" may be used instead of a specific distance.

LOCATION. When used as part of a series, the advance posting distances in Figure 21 and Table 10 should be followed.



W21-5

This sign is used to warn of road work on the shoulder or roadside immediately adjacent to the shoulder. If the work is in the roadway, use the W20-1 sign. This may be the initial sign for some work zones.

LOCATION. When used as part of a series, the advance posting distances in Figure 21 and Table 10 should be followed.



W20-3



NYW8-4

These signs are for advance warning of road and bridge closures. They should be used in advance of each location where the Road Closed (Bridge Out) (R11-2), Road Closed XX Miles Ahead Local Traffic Only (R11-3a) or Bridge Out XX Miles Ahead Local Traffic Only (R11-3b) signs are used and there is no alternative travel path available. If there is an alternative travel path, a detour warning sign (W20-2) should be used instead. The word STREET may be used in place of the word ROAD.

LOCATION. Where used, the sign should be placed in advance of the road or bridge closed sign it is highlighting. The W20-3 signs assume deceleration to an advisory speed of 0 mph (stopped).

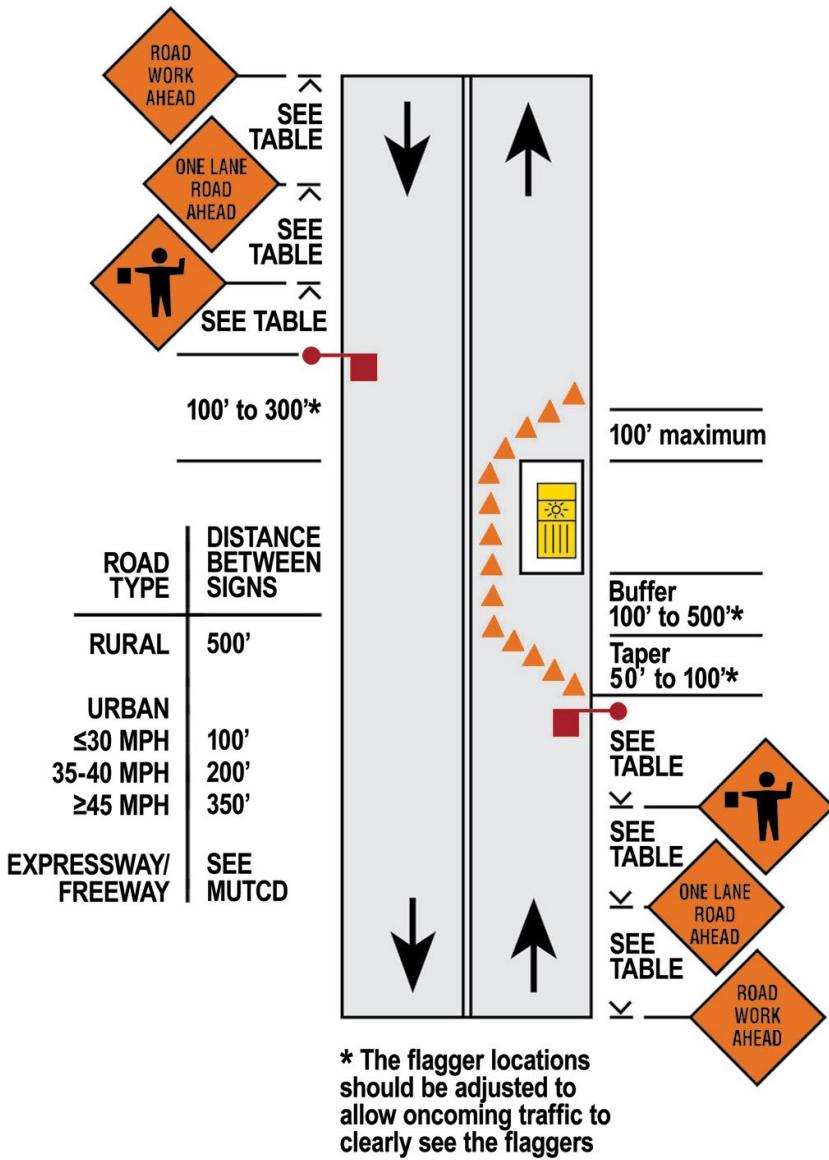


Figure 21. General layout of a work zone

NOTE: More details and examples of work zone layouts can be found in Chapter 6 of the MUTCD.

**W20-2**

This sign is for advance warning of detours which traffic must use to travel around a roadway section or bridge that is closed. The term "AHEAD" may be used instead of a specific distance.

LOCATION. Where used, the sign should be placed at one or more locations in advance of the other signs associated with the detour or bypass roadway.

Table 10. Spacing of advance warning signs

Road Type	Distance Between Signs
Urban <30 mph	100 feet
Urban 35–40 mph	200 feet
Urban ≥45 mph	350 feet
Rural	500 feet
Freeway/Expressway	See MUTCD

**W20-7**

This sign is used to warn drivers that they are approaching a location where they will be controlled by a flagger. The sign should be displayed only while the flagger is directing traffic. It should be promptly removed, covered, or faced away from traffic when flagging activity is stopped.

LOCATION. The W20-7 sign assumes deceleration to an advisory speed of 0 mph (stopped). The advance posting distance should not be shortened unnecessarily. When used as part of a series, the advance posting distances in Figure 21 and Table 10 should be followed.



These signs are used to warn of pavement resurfacing, which may cause a roadway to be temporarily slippery, result in objectionable splashing on vehicles, or produce pelting by loose stones.

The W21-2 sign may be used in conjunction with the W8-7 sign when both conditions exist. These signs should be removed when the conditions they describe no longer exist.

LOCATION. These signs should be placed at a suitable location in advance of the beginning of the resurfacing area.

Where W21-2 and W8-7 signs are both used, the W21-2 sign normally should precede the W8-7 sign.



G20-1

The G20-1 sign is used to provide general information about the presence and extent of work zones. This sign shall be used at the limits of any major job more than two miles long. It may also be useful on shorter projects. Distances on the G20-1 plaque should be listed as follows:

- Project lengths less than one mile should be stated to the nearest one-quarter mile
- Project lengths between one and three miles should be stated to the nearest one-half mile
- Project lengths more than three miles should be stated to the nearest whole mile

LOCATION. The G20-1 sign should be placed at or near the beginning of the work zone.



G20-2

The G20-2 sign may be used at each end of a work area for which road work signs are used. Its purpose is to inform motorists that they need no longer be concerned with work areas.

The G20-2 end road work sign should be used if a G20-1 work zone length sign is used, or if drivers might not realize they have reached the end of the work zone. It should not be used if another work zone starts shortly downstream of the work zone to which it refers.

LOCATION. This sign should be placed at or within 500 feet of the end of the work zones.



M4-10L



M4-10R

These signs are used to guide traffic around sections of highways that are closed or blocked by construction, major maintenance or traffic emergency. These signs shall be used at the beginning of a detour. These signs may also be used at subsequent turns on short-term detours. These signs are not intended for use at minor roadway alignment shifts within the highway boundaries to bypass a work area. Black on orange warning arrows or chevrons are appropriate for such situations.

LOCATION. At the beginning of a detour, these signs should be mounted just below the road closed sign. Where used at turns in a detour route, they should be placed in the near right corner of the intersection.



M4-9L



M4-9



M4-9R



M4-8a

The M4-9 and M4-8a signs are used in a manner similar to the M4-10 Detour signs. The M4-8a sign is used to indicate the end of the detour section. Diagonal arrows or turn (bent) arrows may be used on the M4-9 signs where appropriate. Street name signs may be placed above the signs to identify the detoured route. The street name sign, if used, should be the same color and size as normally used. This allows signs used in the detour to be returned to stock and used later as a standard street name signs (see Chapter 11, page 99).

LOCATION. M4-9 and M4-8a signs should be located in the near right corner of an intersection. M4-9 signs with turn arrows should be located in advance of the intersection. Where distances between turns in a route are long, M4-9 signs should be used at intermediate locations to assure motorists they are continuing to follow the route.

The M4-8a sign should be placed at the last intersection on the detour route. Normally it would be placed on the highway that was detoured.

Chapter 9

Speed Limits

A properly set, properly signed speed limit can promote safe and orderly flow of traffic. An improperly signed speed limit may be difficult for police to enforce, and an unrealistically low or high speed limit can lead to disrespect of speed limits in general. Posted speed limits have been shown to have little effect on the overall speed of traffic, but appropriately set speed limits provide a sound basis for enforcement. Therefore, a speed limit should be enacted only with a proper engineering study.

This chapter is not meant to be a complete reference on speed limits. Refer to Sections 2B.13 through 2B.16 of the MUTCD for more information.

Authority to set speed limits

The New York State Vehicle and Traffic Law gives the authority to set speed limits to villages and cities. Towns with populations of 50,000 or more, or defined as "suburban towns" in section 3A of the Town Law, may also set their own speed limits. This authority extends to county roads within such towns. The New York State Department of Transportation has the authority to set speed limits on state highways maintained by the State.

The New York State Department of Transportation has the authority to set speed limits on county and town roads that do not meet the requirements listed above. To change speed limits on these roads, the town board and the county highway superintendent must file a joint request with the Regional Office of the New York State Department of Transportation to conduct a speed limit study.

Engineering considerations

Speed limits should be set only where they are justified and reasonable. An engineering study should be performed to establish whether a speed limit is appropriate and what the speed should be. This study should be conducted under the supervision of an experienced traffic engineer following the guidelines in the MUTCD.

**R2-1**

R2-1 signs are used to post linear speed limits. They are used to post a speed limit along the road between specified points named in the regulation. The speed limit must be at least 25 mph, except in school zones (V&TL, Sections 1622 and 1643). The speed limits shown shall be in multiples of 5 mph.

LOCATION. An R2-1 sign should be placed at or as near as possible to the beginning of the speed limit. Where the speed limit regulation takes effect at or just before an intersection, the first sign should be placed just beyond the intersection.

Additional signs shall be placed at intervals to remind drivers of the current speed limit. Additional signs are required for speed limits that are more than 1100 feet long. The second sign should be placed within 1100 feet of the first sign. The spacing of subsequent signs depends on the speed limit (see Table 11).

At intersections, curves, or other locations where an advisory speed lower than the speed limit is posted, the speed limit sign should be placed after the location, rather than before it.

Table 11. Spacing of linear speed limit signs in New York State

Speed limit	15	20	25	30	35	40	45	50	55
Distance between first two signs	1100	1100	1100	1100	1100	1100	1100	1100	1100
Distance between subsequent signs	1500	2000	2500	3000	3500	4000	4500	5000	5500



NYR2-2

If no ordinance, official order, or regulation has set a lower speed limit, the 55 mph statewide speed limit applies.

LOCATION. NYR2-2 state speed limit signs shall be placed at the end of linear and area speed limits, if the statewide speed limit applies. Where a highway subject to the statewide speed limit is within, or adjacent to, an area speed limit, NYR2-2 signs shall be placed at suitable locations on that highway to inform motorists leaving the area restriction that the statewide speed limit applies. They can also be used on other highways to inform or remind motorists of the state speed limit, such as near airports or on roads crossing the state line.



NYR2-3



NYR2-4



NYR2-5



NYR2-6

Area speed limits

Area speed limit signs are used when the speed limit of roads within a specific area is regulated. The area may be a city, village, or town, or a part of one. It can also be the grounds of a school, hospital, or other institution. The word "AREA" on the NYR2-3 sign may be replaced by "CAMPUS," "PARK," or some other generic term, if it would more clearly define the area.

For school zone speed limits, see Chapter 6.

If a higher or lower speed limit is appropriate for specific roads within the area, these roads can and should be excluded from the regulation. When a road is excluded from the area speed limit, area speed limit signs shall be placed on intersecting streets, facing traffic entering the area.

The area plaques shown in the National MUTCD shall not be used in New York State.

LOCATION. The appropriate area speed limit sign shall be posted at the speed limit boundary on each road that crosses the boundary. If the area speed limit boundary crosses at or near an intersection, the sign should be placed on the far side of the intersection. Additional signs may be posted within the area as reminders to motorists.



W3-5

These signs are used to warn drivers that they are approaching a lower speed limit. They should be used anytime the speed limit reduces by 15 mph or more. They should also be used when the first sign for the lower speed limit cannot be seen in time to slow to the lower speed. The speed limit shown shall match the speed limit on the subsequent Speed Limit sign.

LOCATION. The sign should be placed assuming deceleration to a speed equal to the speed limit being approached.



NYR2-11

This sign is used at the end of a linear or area speed limit if an NYR2-2 state speed limit 55 sign is undesirable. It is not to be used where the speed limit is changing from one speed to another that is not 55 mph. For example, if a 30 mph speed limit ends just before a 35 mph curve, an NYR2-2 state speed limit 55 sign might encourage drivers to exceed the safe speed for the curve. This is where the end speed limit sign is used. Another option may be to extend the speed limit past the curve. Every speed zone is required to have a sign at the end of the zone indicating the new speed limit.

LOCATION. The NYR2-11 sign is placed as near as possible to the end of the linear or area speed limit. An NYR2-2 sign shall be placed at the first suitable location after the NYR2-11, unless another regulatory speed limit begins within one-quarter mile.



G20-5aP / R2-1

Work zone speed limits are used to slow traffic through a construction or maintenance work site. Used properly, they can help manage work zone traffic. State law doubles the minimum fines for speeding in work zones.

As with any speed limit, the decision to post a work zone speed limit should not be taken lightly. If the speed limit is set too low, it probably will not be obeyed. The work zone speed limit may not be reduced by more than 20 mph from the normally posted limit, and shall not be less than 25 mph. Reducing the speed limit by 10 mph is usually reasonable and effective.

There are many causes for excessive speed in work zones. Some causes are often best addressed by police enforcement. This includes cases where motorists are already exceeding the posted speed limit before the work zone and fail to slow sufficiently upon entering the work zone. It is likely that work zone speed limits on these projects will not be effective and may be counterproductive.

If physical and operational restrictions in the work zone require travel speeds slower than those in effect prior to the start of construction, the site may be a good candidate for a work zone speed limit.

If work zone speed limit signs are installed before work will start, or remain up after work is completed, they shall be covered. They should also be covered at night or during other non-work periods, unless there is a condition that presents a significant hazard to traffic, such as alternating one-way traffic or a deep drop-off next to the pavement. Otherwise, work zone speed limits will be viewed as meaningless and disobeyed when they are most needed.

An agency that decides to use a work zone speed limit should document their decision to do so, including the reasons it was deemed necessary, the speed chosen, and the layout of the signs. This will help in the case of a contested speeding ticket or a lawsuit against the municipality.

There are three main methods to set a work zone speed limit:

1. By following the normal procedures, the speed limit on a section of highway can be changed. This method is rarely applied to work zones because it does not permit flexibility in varying the speed limit to meet changing project conditions, and it remains in effect until rescinded by a subsequent filing.
2. Section 1625 of the Vehicle and Traffic Law and Section 104a of the Highway Law allow town and county highway superintendents and the State Department of Transportation to designate sections of road as restricted highways. By filing a restricted highway notice, state, county and town agencies are authorized to post traffic regulations that are necessary for completion of the work, including speed limits, weight and dimension limits, and parking regulations. This permits the agency to order the posting of speed limits as necessary to fit changing conditions on the project. Individual filing is not necessary for these changes once the restriction is filed. This procedure provides the most flexibility in establishing traffic regulations for construction zones. Town and County Highway Superintendents file notices in the town or county clerk's office. The Department of Transportation files the notice with the Department of State.
3. Section 1180(f) of the New York State Vehicle and Traffic Law provides the agency having jurisdiction over an affected street or highway with the authority to establish a reduced speed limit in construction or maintenance work areas. Work area speed limits established under this procedure can be no lower than 20 mph below the normally posted speed limits, and shall not be lower than 25 mph.

LOCATION. Where used, the G20-5aP supplemental plaque shall be placed immediately above the speed limit sign it supplements.

Usually, a work zone speed limit extends from a point after the first advance warning sign to the end of the work zone.

Signing work zone speed limits is done the same way as linear speed limits (see Table 10, page 83), except the G20-5aP "Work Zone" plaque should be placed above all speed limit signs in the work zone. At the end of the work zone, the appropriate speed limit sign should be installed to inform traffic of the speed limit change.

Chapter 10

Pavement Markings

Pavement markings are used to guide and regulate traffic. They can improve the safety of a highway, and inform the driver without diverting attention from the roadway. This Handbook only covers the basics of pavement markings and a few specific applications. Consult Chapter 3 of the MUTCD for more detail.

Pavement markings are useful for guiding traffic through sharp or multiple curves, delineating road width reductions, and marking no-passing zones. They are especially useful in addressing run-off-road and crossover crash problems for all roads.

Maintenance

Pavement markings must be re-applied as needed to maintain good visibility. Failure to do so can result in a liability risk to the municipality. Once the decision has been made to use pavement markings, maintenance must be continued to avoid the risk of liability, unless a formal engineering study shows the money is better spent elsewhere. The findings of the study should be documented and filed for future reference.

The effectiveness of pavement markings decreases as the markings wear. New markings provide much better guidance than worn ones, especially at night. The nighttime retroreflectivity of pavement markings is often lost before wear is apparent during daylight.

Standardization

Pavement markings, like any other traffic control device, must be standardized so the driver clearly understands the intent. A marking pattern should mean the same thing anywhere in the country that a motorist may travel. A lack of uniformity can cause confusion, and possibly a safety hazard.

Colors and patterns shall be standardized to agree with the MUTCD. The two most common colors used are white and yellow.

White is used for:

- Separating lanes of traffic moving in the same direction, including turn lanes and bicycle lanes
- Pavement edge lines to the right of traffic
- Delineating paved shoulder areas to the right of traffic
- Transverse lines such as stop lines and crosswalks
- Words and symbols
- Parking stall lines

Yellow is used for:

- Center lines and center islands separating traffic moving in opposite directions on two-way roads
- Edge lines on the left side of one-way roads, and next to the median on divided highways
- Delineating paved shoulder areas to the left of traffic on divided or one-way roads

For more information on pavement markings, including applications not included in this Handbook, see Chapter 3 of the MUTCD.

Types of lines

BROKEN LINES are used to divide traffic in locations where passing or lane changing is not prohibited or discouraged. A broken line is a dashed line, with ten-foot (10') long line segments and 30 foot (30') gaps. The line segments are usually four inches wide on local roads.

SOLID LINES are used to mark edges and delineate items such as shoulders and islands. Single solid yellow lines shall not be used to mark no passing zones.

SOLID DOUBLE LINES are used to prohibit passing in both directions (yellow) or lane changing (white). They are usually composed of two, four-inch wide, solid lines four inches apart.

A SOLID LINE WITH A BROKEN LINE is used to prohibit passing in one direction, but not the other. A solid four-inch wide line is used on the side where passing or lane changing is prohibited, and a broken line is used on the side where passing is allowed.

TRANSVERSE LINES include stop lines, crosswalks, and railroad clearance lines.

WORDS AND SYMBOLS are used to convey information to drivers. The most commonly used words and symbols are arrows and “ONLY” markings used in turning lanes. Other commonly used symbols are bicycle lane markings.

Center lines

Center lines are used to divide traffic on two-way roads. Broken lines are used where passing is allowed. Solid double lines or a solid line with a broken line is used to mark no-passing zones. They should not be used on two-way roads less than 16 feet wide.

At intersections, solid double lines are sometimes used to prohibit passing on the approaches, even if there is enough sight distance to pass. They can also be used to separate traffic approaching and departing from the intersection.

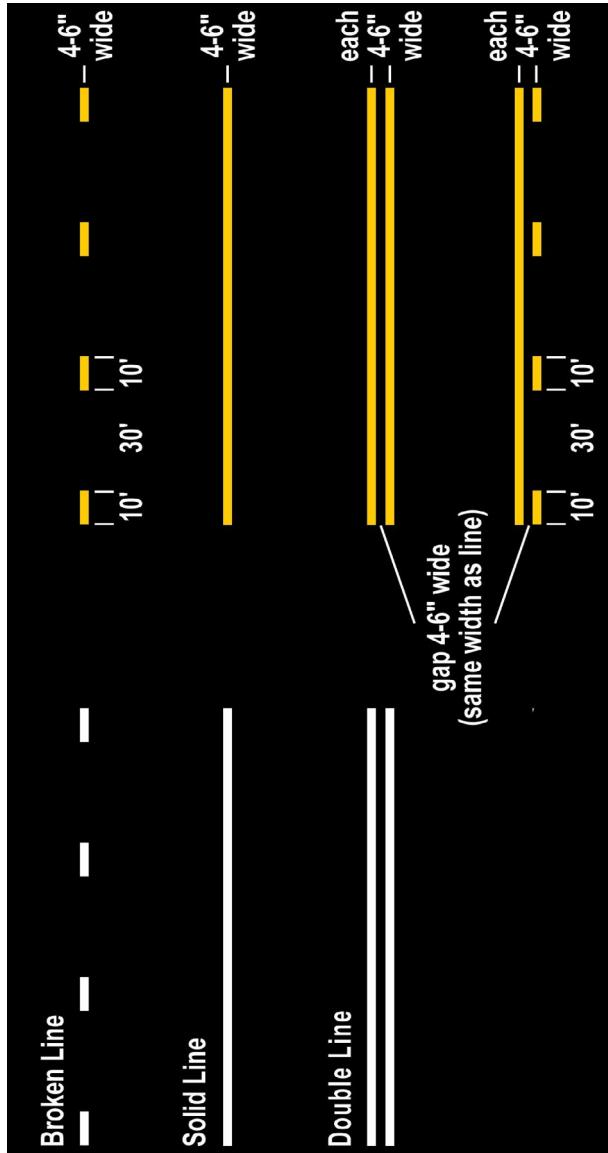


Figure 22. Types of longitudinal markings

Center line pavement markings are required:

- On paved urban arterials and collectors 20 feet or more in width with an average daily traffic (ADT) of 6,000 or more
- On paved roads with more than two lanes

Center line pavement markings are recommended:

- On paved urban arterials and collectors 20 feet or more in width with an average daily traffic (ADT) of 4,000 or more
- On paved rural arterials and collectors 18 feet or more in width with an average daily traffic (ADT) of 3,000 or more

Center line pavement markings are not recommended:

- On paved roads less than 16 feet in width without an engineering study due to the possibility of traffic encroaching in the opposite lane

LOCATION. Center lines are placed between traffic streams moving in opposite directions. Where the decision has been made to prohibit passing on the approach to an intersection, passing should be prohibited for at least 400 feet in advance of the intersection.

Edge lines

Edge lines are solid lines used to delineate the edge of the traveled way. They are white, except yellow is used to delineate the left side of a one-way road or the median of a divided road.

Edge lines are used for the following purposes:

- To guide traffic through transitions where the roadway narrows. The edge line should extend from a point at least 100 feet before the transition to at least 100 feet after it
- To guide traffic through sharp curves or abrupt alignment changes. The edge line should extend from a point at least 100 feet before the first curve to at least 100 feet past the end of the last curve
- To divide travel lanes from paved shoulders
- To guide traffic away from obstructions such as bridge abutments near the road. The edge line should extend from a point at least 100 feet before the transition to a point even with the far end of the object

Edge line pavement markings are required:

- On paved rural arterials 20 feet or more in width with an average daily traffic (ADT) of 6,000 or more

Edge line pavement markings are recommended:

- On paved rural arterials and collectors 20 feet or more in width with an average daily traffic (ADT) of 3,000 or more

Stop and Yield lines

Stop and yield lines are used to show drivers where they should stop or yield their vehicles. They are used with traffic control devices that require, or may require, traffic to stop, such as stop signs, yield signs, traffic signals, and railroad crossing signals. They are especially useful when a stop or yield sign cannot be placed near where traffic should stop. Stop

lines may be between 12 and 24 inches wide, with most being 18 inches wide. Yield lines consist of a row of white triangles pointing towards traffic as shown in Figure 23. At a skewed intersection, the triangles should be rotated to face traffic.

LOCATION. At intersections, the stop or yield line should be between four and thirty feet from the near edge of the intersecting roadway. It need not be at the same location as the stop or yield sign. A location near the intersection that provides good visibility of oncoming traffic is preferred. If the stop line is too close to the intersection, stopped vehicles may interfere with left-turning traffic from the intersecting street. Where there is a marked crosswalk at the intersection, the stop or yield line should be four feet (4') in advance of the crosswalk.

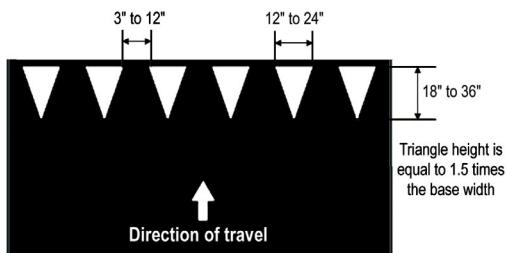


Figure 23. Yield lines

Crosswalks

Crosswalks are transverse pavement markings that are used to delineate pedestrian crossings. Crosswalks should be marked at intersections that have substantial conflicts between pedestrians and vehicles, and at places where motorists may not expect the crossing.

Crosswalks should not be used indiscriminately as crash rates may actually increase after installation. Where possible, crosswalks should be placed where there is enough sight distance for a driver to stop before hitting a crossing pedestrian. The sight distance to the crosswalk should not be in the red zone shown in Table 5 (page 34).

Crosswalks should extend across the entire roadway width, including shoulders. They should be between 6 and 20 feet wide. If curb ramps are used to improve access for persons with disabilities, the crosswalk should be at least as wide as the ramps.

There are four general types of crosswalk markings: transverse, longitudinal, diagonal, and combination (see Figure 24).

Transverse crosswalks consist of two parallel lines across the pavement. The lines shall be at least 6 inches wide, but they generally should not be more than 12 inches wide except where added emphasis is required. They may not be wider than 24 inches.

Longitudinal markings, also called ladder or zebra markings, should be parallel to the flow of traffic. They should be between 12 and 24 inches wide, and between 12 and 24 inches apart. The markings can be spaced so that they are between the wheel paths of traffic to reduce wear on the markings.

Diagonal markings should be at a 45-degree angle to the flow of traffic. They should be between 12 and 24 inches wide, and between 12 and 24 inches apart.

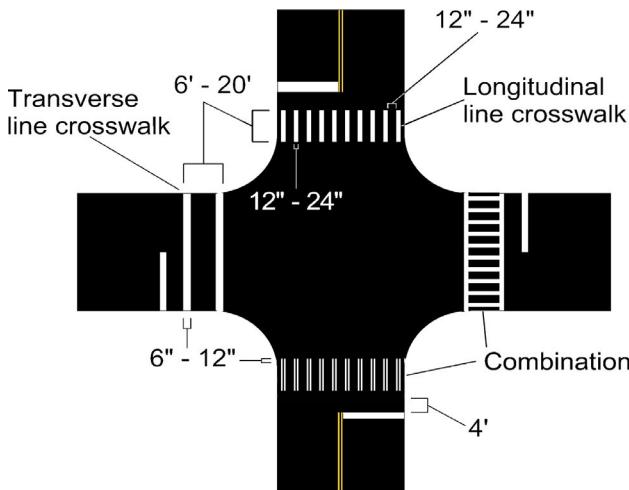


Figure 24. Crosswalk markings

Combination markings use transverse markings, with or without transverse markings between them. The combination of the longitudinal and transverse markings is easily seen by both pedestrians and drivers.

Transverse and longitudinal lines should be used at locations where added emphasis of the crosswalk is needed, such as unexpected or mid-block crossings, or uncontrolled crosswalks with high pedestrian traffic. Make sure that by emphasizing one crosswalk with transverse and longitudinal lines, you are not de-emphasizing a nearby crosswalk that does not have them. When considering the use of transverse and longitudinal markings, use care since pavement marking materials are often slippery when wet.

Railroad Crossing Markings: See Chapter 4.

Chapter 11

Guide & Information Signs

Guide and information signs generally provide drivers with information about destinations and routes. As a general rule, they have a lower priority versus regulatory and warning signs. However, some guide signs can be very important in certain situations. An example of this is the Hospital 'H'. When a medical emergency occurs, this particular guide sign becomes very important.

This Handbook does not have room to cover even a small percentage of the available guide and information signs available in the MUTCD. However, this chapter provides information about a couple of commonly used guide and information signs on local roads.



D3-1

The D3-1 sign is used to identify an intersecting street. The lettering needs to be a mix of upper and lower-case letters. The first letter of each name or abbreviation shall be uppercase and the rest of the lettering in the name or abbreviation shall be lower-case. The lettering height should be at least six inches (6"). For local roads with speed limits of 30 mph or less, the lettering height may be reduced to four (4")

inches. Street name signs have a white legend on a green background. The only other acceptable color combinations are a white legend on a blue or brown background, or a black legend on a white background.

The height of the street sign blade shall be twice the height of the letters. For six inch (6") letters, the blade needs to be twelve inches (12") in height. For four inch (4") letters, the blade needs to be eight inches (8") in height. The border is optional, but the sign blade height shall not be reduced when using a street sign without a border.

LOCATION. In business districts and on major roads, place street name signs on diagonally opposite corners on the far right side for the more important street. In residential areas, place a street name sign at each intersection. The signs should be mounted as close to the intersection as practicable.

Street name signs may be mounted on the same posts as stop or yield signs as long as the street name sign will not distract the drivers on the road approaching the stop sign and they are still visible from the main road. Note that the letter size for the sign parallel to the Stop sign may be the smaller four (4") inch size as vehicles have to stop when they get to the sign. The sign perpendicular to the Stop sign may need to be the larger lettering depending upon the speed on the intersecting highway.



Steuben
County



Village of
Lake Placid



Oceanside

NYI12-2a (County)

NYI12-2a (Village)

NYI12-1

The NYI12-2a, and NYI12-1 political boundary signs are used to provide information about the location of various boundaries of county, town, city, village, and hamlet boundaries.

The NYI12-2a sign should be used to inform the motorist of a county, town, village or city boundary line.

The NYI12-1 sign should be used to inform the motorist of a hamlet boundary line.

LOCATION: These signs should be placed at the edge of the political boundary. In the case of a hamlet, the location should be placed at the general edge of the hamlet area. If a speed zone starts at a county or municipal line and the NYI12 sign would normally be placed at the same location as the first speed limit sign, place the speed limit sign as close to the beginning of the zone as possible, and place the NYI12 sign at an appropriate location upstream or downstream of the speed limit sign.

Appendices

Appendix A: Sign Index—Page 102 through 119

The Sign Index is a fast way to find the signs contained in this Handbook.

The far right hand column contains the standard sizes for typical two lane roads covered by this Handbook.

Two lane roads are referred to as conventional roads in the MUTCD. Other sign sizes are listed in the MUTCD, or Standard Highway Signs and Markings (SHS). The common sizes for regulatory and warning signs are listed in the MUTCD in Table 2B-1 and Table 2C-2 respectively.

The index is not in the same order as the rest of the Handbook, nor does it match the order in the MUTCD. Related signs have been grouped together. Warning signs that directly supplement a particular class of regulatory sign are included in the same group. Here is the general grouping used in the index.

- Stop and yield signs
- Speed limits
- Weight limits and overhead clearance
- Road and bridge closures
- Railroad crossings
- Turn and curve warning signs
- Intersection warning signs
- Other warning signs
- Work zone warning signs
- Guide and information signs
- Pavement markings

Appendix B: Where to Get Help

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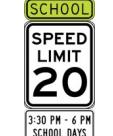
Appendix C: References

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Appendix A: Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 R1-1	Stop	2B.05 5B.02	26	30" x 30"
 R1-2	Yield	2B.08 5B.02	28	36"
 R1-3P	All Way Stop Plaque	2B.05	29	18" x 6"
 W3-1	Stop Ahead	2C.36 5C.04	29	30" x 30"
 W3-2	Yield Ahead	2C.36 5C.04	30	30" x 30"
 R2-1	Speed Limit XX	2B.13 5B.03	88	24" x 30"
 NYR2-2	State Speed Limit 55	2B.13	89	24" x 30"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 NYR2-3	Area Speed Limit XX	2B.13	89	24" x 30"
 NYR2-4	City Speed Limit XX	2B.13	89	24" x 30"
 NYR2-5	Village Speed Limit XX	2B.13	89	24" x 30"
 NYR2-6	Town Speed Limit XX	2B.13	89	24" x 30"
 S4-3P / R2-1 / NYR7-4P	School Speed Limit Assembly	7B.15	68	24" x 8" 24" x 30" 24" x 10"
 NYR7-4P, NYR7-13P	School Area Plaques—must be used with School Speed Limit Assembly	7B.15	68	24" x 10"
 G20-5aP + R2-1	Work Zone Speed Limit Assembly	6F.12 2B.13	91	24" x 18" 24" x 30"

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W3-5	Speed Zone Ahead	2C.38	90	36" x 36"
 NYR2-11	End XX MPH Speed Limit	2B.101	90	24" x 30"
 R12-1	Weight Limit XX Tons	2B.59 5B.04	45	24" x 30"
 NYW3-19	Bridge Weight Limit XX Tons Ahead	2C.103	45	30" x 30"
 NYR5-6	XX'-XX" Clearance	2B.108	47	36" x 18"
 NYR5-7	XX'-XX" Clearance with Arrow	2B.108	47	36" x 30"
 W12-2	XX'-XX" Low Clearance Ahead	2C.27	47	36" x 36"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 R11-2	Road Closed	2B.58 5B.04	55	48" x 30"
 R11-2	Bridge Out	2B.58 5B.04	55	48" x 30"
 R11-3a	Road Closed XX Miles Ahead Local Traffic Only	2B.58 5B.04	55	60" x 30"
 R11-3b	Bridge Out XX Miles Ahead Local Traffic Only	2B.58 5B.04	55	60" x 30"
 W20-3	Road Closed XX FT	6F.20	81	36" x 36"
 NYW8-4	Bridge Closed XX FT	6F.101	81	36" x 36"
 NYR8-10	Seasonal Limited Use Highway	2B.106	57	30" x 36"

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 NYW4-16	Minimum Maintenance Road	2C.110	57	30" x 30"
 R15-1*	Railroad Crossbuck *A STOP (R1-1) or YIELD (R1-2) sign is also required at passive crossings	8B.03 5F.02	52	48" x 9" Panels
 W10-1	Railroad Advance Warning	8B.06 5F.03	53	36" Diameter
 W1-1L	Turn Left	2C.06 5C.02	40	30" x 30"
 W1-1R	Turn Right	2C.06 5C.02	40	30" x 30"
 W1-2L	Curve Left	2C.06 5C.02	40	30" x 30"
 W1-2R	Curve Right	2C.06 5C.02	40	30" x 30"

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
	Reverse Turn Left	2C.06 5C.02	41	30" x 30"
W1-3L				
	Reverse Turn Right	2C.06 5C.02	41	30" x 30"
W1-3R				
	Reverse Curve Left	2C.06 5C.02	41	30" x 30"
W1-4L				
	Reverse Curve Right	2C.06 5C.02	41	30" x 30"
W1-4R				
	Winding Road (Left)	2C.06 5C.02	42	30" x 30"
W1-5L				
	Winding Road (Right)	2C.06 5C.02	42	30" x 30"
W1-5R				
	Arrow (Left)	2C.12 5C.02	42	48" x 24"
W1-6L				

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
	Arrow (Right)	2C.12 5C.02	42	48" x 24"
	Chevron (Left)	2C.09 5C.02	43	18" x 24"
	Chevron (Right)	2C.09 5C.02	43	18" x 24"
	Combination Curve and Intersection	2C.11	35	36" x 36"
	Intersection (Cross)	2C.46 5C.03	32	30" x 30"
	Intersection (Left)	2C.46	32	30" x 30"
	Intersection (Right)	2C.46	32	30" x 30"

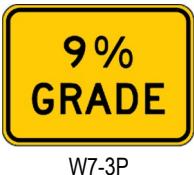
Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
	Intersection (T)	2C.46 5C.03	32	30" x 30"
	Intersection (Angle up left)	2C.46	32	30" x 30"
	Intersection (Angle up right)	2C.46	32	30" x 30"
	Intersection (Angle back left)	2C.46	32	30" x 30"
	Intersection (Angle back right)	2C.46	32	30" x 30"
	Intersection (Y)	2C.46 5C.03	32	30" x 30"
	Offset Intersection (left then right)	2C.46	32	30" x 30"

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W2-7R	Offset Intersection (right then left)	2C.46	32	30" x 30"
 NYW5-16	Driveway Entrance Plaque (1 Line)	2C.126	35	24" x 12"
 NYW5-17	Driveway Entrance Plaque (2 Line)	2C.126	35	24" x 18"
 W2-6	Circular Intersection	2C. 46	31	30" x 30"
 W1-7	Large Arrow (two directions)	2C.47 5C.02	34	48" x 24"
 W7-1	Hill	2C.16 5C.07	58	30" x 30"
 W7-2P	Use Low Gear	2C.57	58	24" x 18"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
	X% Grade	2C.57 5C.07	58	24" x 18"
	Narrow Bridge	2C.20 5C.05	48	36" x 36"
	One Lane Bridge	2C.21 5C.06	48	36" x 36"
	Dead End	2C.26 5C.11	62	30" x 30"
	No Outlet	2C.26 5C.11	63	30" x 30"
	End of Roadway Marker	2C.63 2C.66	63	18" x 18"
	Type 1 Object Marker	2C.63-64	60	18" x 18"

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 OM3-L	Type 3 Object Marker left	2C.64-65	49	12" x 36"
 OM3-R	Type 3 Object Marker right	2C.64-65	49	12" x 36"
 W8-1	Bump	2C.28	59	30" x 30"
 W8-2	Dip	2C.28	59	30" x 30"
 W8-3	Pavement Ends	2C.30 5C.08	60	36" x 36"
 W8-8	Rough Road	2C.32 6F.46	60	36" x 36"
 W8-5	Slippery when wet	2C.32	61	30" x 30"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W8-4	Soft Shoulder	2C.31	64	36" x 36"
 W8-9	Low Shoulder	2C.31	64	36" x 36"
 W8-23	No Shoulder	2C.31 6F.16	64	36" x 36"
 W8-14	Fallen Rocks	2C.32	65	30" x 30"
 W7-6	Hill Blocks View	2C.16	59	30" x 30"
 W11-2	Pedestrian Symbol	2C.50 5C.09	73	30" x 30"
 W11-2 + W16-7P	Crosswalk Assembly	2C.50 2C.47	73	30" x 30" 24" x 12"

New York State Traffic Sign Handbook for Local Roads

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W11-9	Wheelchair	2C.50 5C.09	74	30" x 30"
 W11-9 + W16-7P	Wheelchair Crossing Assembly	2C.50 2C.50	74	30" x 30" 24" x 12"
 W11-1	Bicycle Symbol	2C.50 5C.09	75	30" x 30"
 W11-1 + W16-7P	Bicycle Crossing Assembly	2C.49 2C.50	75	30" x 30" 24" x 12"
 W11-6 + W16-7P	Snowmobile Crossing Assembly	2C.50 2C.50	76	30" x 30" 24" x 12"
 NY5-19	ATV Crossing	2C.40	76	30" x 30"
 W11-5	Farm Equipment Symbol	2C.49 5C.09	76	30" x 30"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W11-4	Farm Animal Symbol	2C.49 5C.09	77	30" x 30"
 W11-22	Wild Horses Symbol	2C.50	77	30" x 30"
 W11-7 + W16-7P	Horse & Rider Crossing Assembly	2C.50 2C.50	77	30" x 30" 24" x 12"
 W11-3	Deer Crossing	2C.50 2C.47	77	30" x 30"
 W11-14	Horse-drawn Vehicles	2C.49	78	30" x 30"
 S1-1 + W16-7P	School Crossing Assembly	7B.08 7B.12	71	36" x 36" 24" x 12"
 S3-1	School Bus Stop Ahead	7B.13	71	36" x 36"

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Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 S3-2	School Bus Turn Ahead	7B.14	72	36" x 36"
 W15-1	Playground Symbol	2C.51	72	30" x 30"
 W13-1P	Advisory Speed Plaque XX MPH	2C.08	44	18" x 18" or 24" x 24"
 W16-7P	Crossing Arrow Plaque	2C.50	73	24" x 12" or 30" x 18"
 W16-2P	XX Feet	2C.55 6F.49 5C.09	66	24" x 18" or 30" x 24"
 W16-3P	XX Miles Ahead	2C.55	66	24" x 18" or 30" x 24"
 W16-4P	Next XX Feet	2C.55	66	24" x 18" or 30" x 24"

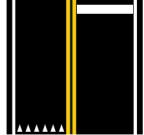
Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 W7-3aP	Next XX Miles	2C.55	66	24" x 18" or 30" x 24"
 W20-1	Road Work XX FT	6F.18 5G.05	80	36" x 36"
 W21-5	Shoulder Work	6F.37 5G.05	81	36" x 36"
 W20-2	Detour XX FT	6F.19	83	36" x 36"
 W21-1	Work Ahead Symbol	6F.33 5G.05	80	36" x 36"
 W20-7	Flagger Symbol	6F.31 5G.05	83	36" x 36"
 W21-2	Fresh Oil	6F.34 5G.05	84	36" x 36"

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Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
	Loose Gravel	Figure 6F-4 5G.05 6F.16	84	36" x 36"
	Road Work Next XX Miles	6F.56	84	36" x 18"
	End Road Work	6F.57	85	36" x 18"
	Detour Left Arrow	6F.59	85	48" x 18"
	Detour Right Arrow	6F.59	85	48" x 18"
	Detour (with * arrow)	6F.59	86	30" x 24"
	End Detour	6F.59	86	30" x 24"

Appendix A—Sign Index

Sign & Designation	Description	MUTCD Section(s)	Handbook Page	Standard Size(s)
 D3-1	Street Name	2D.43	99	8" (\leq 30 mph) 12" (\geq 35 mph)
 NYI12-2a	County/Municipal Boundary	2H.104	100	30" height
 NYI12-1	Hamlet	2H.104	100	18" height
	Railroad Crossings	8B	54	see text
	Crosswalks	3B.18	97	see text
	In-street Pedestrian Crossing	2B.12	74	12" x 36"
	Longitudinal and Transverse Lines	Chapter 3A & 3B	94	see text

Appendix B: Where to Get Help

Cornell Local Roads Program

416 Riley Robb Hall, Ithaca NY 14853 Telephone: (607) 255-8033 Fax: (607) 255-4080 Email: clrp@cornell.edu

New York State Department of Transportation (NYSDOT)

Main Office—50 Wolf Road, Albany, NY 12205 (518) 457-6195

Regional Offices

1. 328 State Street, Schenectady, NY 12305
(518) 388-0388
2. 207 Genesee Street, Utica, NY 13501
(315) 793-2447
3. 333 E. Washington St, Syracuse, NY 13202
(315) 428-4351
4. 1530 Jefferson Road, Rochester, NY 14623
(716) 272-3310
5. 100 Seneca Street, Buffalo, NY 14203
(716) 847-3238
6. 107 Broadway, Hornell, NY 14843
(607) 324 8404
7. 317 Washington Street, Watertown, NY 13601
(315) 785-2333
8. 4 Burnett Boulevard, Poughkeepsie, NY 12603
(914) 431-5750
9. State Office Building
44 Hawley Street, Binghamton, NY 13901
(607) 733-8116
10. State Office Bldg, 250 Veterans Memorial Hwy
Hauppauge, NY 11787
(516) 360-6632
11. Hunters Point Plaza
47-40 21st Street, Long Island City, NY 11101
(718) 482-4526

Note: These numbers are the main numbers for each NYSDOT Office. To get help on MUTCD related questions, ask for Traffic Operations.

Appendix C: References

Manual on Uniform Traffic Control Devices for Streets and Highways

Published by the Federal Highway Administration, this manual is the nationwide standard for traffic control devices. The official version is available online at mutcd.fhwa.dot.gov.

Printed copies are available through:

AASHTO 800-231-3475

bookstore.transportation.org

APWA 800-848-2792

www2.apwa.net/bookstore/category.asp?Category=FS

ATSSA 540-368-1701

www.atssa.com/OnlineStore.aspx

ITE 202-289-0222 ext. 130,

ecommerce.ite.org/IMIS/iCommerce/Bookstore/SearchBookStore/iCommerce/Orders/SearchBookStore.aspx

Volume 17B of the NY Codes, Rules And Regulations (NYS Supplement)

Commonly known as the NYS Supplement, this volume contains Chapter V, entitled Uniform Traffic Control Devices. It is available from Thomson Reuters/West: 1-800-344-5008, or online at west.thomson.com.

NYSDOT maintains an unofficial online version of the NYS Supplement at www.dot.ny.gov/mutcd.

Highway Law (McKinney's Consolidated Laws of New York, Book 24)

This book covers the authority of state and local officials to build, maintain, and regulate highways in the State of New York. It is available from Thomson Reuters/West: 1-800-344-5008, west.thomson.com.

Vehicle And Traffic Law of the State of New York

Available from several sources, including:

Gould Publications, 199/300 State Street, Binghamton NY 13901
(607) 724-3000

Looseleaf Law Publications, Inc., 43-08 162nd Street, Flushing, NY 11358
(800) 647-5547, www.looseleaflaw.com.

Work Zone Safety, Guidelines for Construction, Maintenance and Utility Operations.

Commonly referred to as the ‘Work Zone Safety Pocket Guide’, this convenient spiral-bound publication covers the requirements of the National MUTCD. The emphasis is on small, short-term work zones in rural and small urban areas. It is available from your LTAP Center.

Flagger’s Handbook

This pocket-sized booklet provides information on flagging techniques. It is available from your LTAP Center.

A Policy on Geometric Design of Highways and Streets

American Association of State Highway and Transportation Officials (AASHTO) — Commonly referred to as the “Green Book”, this publication contains the practices in common use for highway geometric design.

Guidelines for Geometric Design of Very Low-Volume Local Roads

(ADT ≤ 400)

American Association of State Highway and Transportation Officials (AASHTO) — This publication contains the geometric design practices for very low-volume roads.

Both are available from AASHTO at 1-800-231-3475 or from their website located at bookstore.transportation.org.

A Guide To Small Sign Support Hardware

This book contains details for many proprietary and non-proprietary sign post systems that have been tested for safety performance. It is available from AASHTO at 1-800-231-3475 or from their website located at bookstore.transportation.org.

Websites

Laws of the State of New York:

public.leginfo.state.ny.us/lawssrch.cgi?NVLWO:

NYSDOT approved products list:

www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/materials-and-equipment.

NCHRP 350 hardware:

safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/nchrp_350.

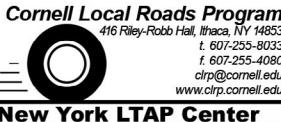
Manual for Assessing Safety Hardware (MASH)

Second Edition, AASHTO, 2016:

bookstore.transportation.org/Item_Details.aspx?id=2707.

FHWA Approved Crashworthy Hardware

safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/#crashworthy



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