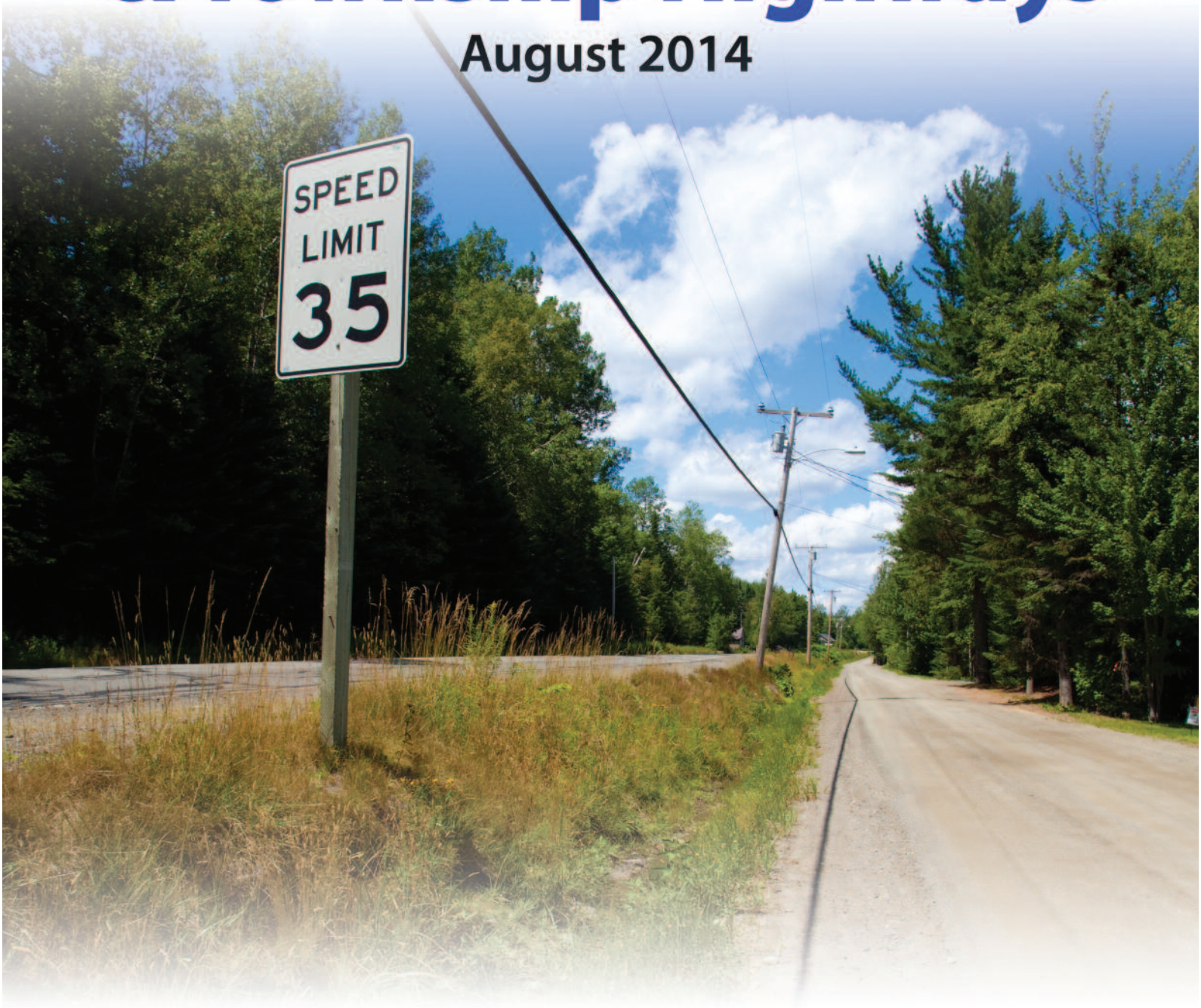
State of Illinois
Illinois Department of Transportation

Signing of Road District & Township Highways

August 2014



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Signing of Road District and Township Highways

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Bureau of Local Roads & Streets

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August 2014

FOREWORD

This booklet is issued for convenience of road district highway commissioners and others who may be concerned with proper signage on highways under the jurisdiction of Illinois road districts. It provides a ready reference to typical sign details and typical applications; however, it is not meant to replace or supplement the Manual on Uniform Traffic Control Devices (MUTCD) or the Illinois Supplement to the MUTCD (ILMUTCD).

The most recent version on the MUTCD is available from the Federal Highway Administration's (FHWA) website at http://mutcd.fhwa.dot.gov. The ILMUTCD is available from the department's website at www.dot.il.gov/mutcd/utcdmanual.html. Road district highway commissioners should review the MUTCD before installing, replacing, or removing signs. The County Engineer may also be able to assist.

DOCUMENT CONTROL AND REVISION HISTORY

The Signing of Road District and Township Highways guide is reviewed after as needed based on changes to the MUTCD. Changes to this manual are approved by the Bureau of Local Roads & Streets Policy & Technology Unit.

Distribution

This manual is available in the Illinois Technology Transfer Center's library as a Portable Document Format (PDF) on the Center's web site and as a hard copy. Hard copies are also provided to the Illinois Association of County Engineers and the Township Officials of Illinois for highway commissioner training.

Revision History

The Bureau of Local Roads & Streets maintains archived copies of the manual since 2002.

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CHAPTER 1: INTRODUCTION

Section 1: GENERAL

Highway signing is important because it helps ensure traffic safety by providing for orderly and predictable movement of traffic on all street and highway systems.

The purpose of this publication is to provide guidance to the Highway Commissioner and County Engineer regarding signs and their uses and traffic control devices. Any reference to the "MUTCD" is to the "Manual on Uniform Traffic Control Devices" or the "Illinois Supplement to the National Manual on Uniform Traffic Control Devices".

This publication should not be used as a substitute for engineering judgment. It is intended that the provisions of this publication be used as guidelines and not the final authority on the signing of township highways.

According to 625 ILCS 5/11-301, the Department shall adopt a State manual and specifications for a uniform system of traffic control devices consistent with the Illinois Vehicle Code for use upon highways within this State. The Department adopts the latest edition of the Manual on Uniform Traffic Control Devices by issuing a supplemental manual. Conformance with the latest editions of the "Manual on Uniform Traffic Control Devices" and the "Illinois Supplement to the MUTCD" is required by 625 ILCS 5/11-304. This statue states:

"Local authorities in their respective maintenance jurisdiction shall place and maintain such traffic control devices upon highways under their maintenance jurisdiction as are required to indicate and carry out the provisions of this Chapter, and local traffic ordinances or to regulate, warn, or guide traffic. All such traffic control devices shall conform to the State Manual and Specifications and shall be justified by traffic warrants stated in the Manual. Placement of traffic control devices on township or road district roads also shall be subject to the written approval of the county engineer or superintendent of highways."

Section 2: PURPOSE

The purpose of highway signing on road district and township roads is to help insure safety by providing for the orderly and predictable movement of all traffic, both motorized and non-motorized throughout the local system and to provide regulations, warnings, and guidance as are needed to insure the safe and informed operation of all users of the system.

Highway signing should be used only where justified by engineering judgment or studies. Signs are essential to regulate and guide traffic over established routes and give information concerning direction and destinations. They warn of hazards that are not evident and call attention to special regulations and restrictions. To be effective, a highway sign should meet five basic requirements:

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

Failure to install and maintain proper signing on township highways has resulted in a number of liability suits. These suits have involved county and township employees who are responsible for highways and highway signing.

The primary purpose of this publication is to assist highway commissioners and county engineers in providing highway signing and guidance for persons driving on their roads. The recommended practices in this publication are based on typical conditions.

Section 3: PRINCIPLES

More effective use of highway signing requires an understanding of some principles relating to good operating practices. Included in the basic principles are driver expectancy, positive guidance and consistency.

Driver Expectancy
Driver expectancies are affected by the type of function of road, such as an interstate highway, state highway, county road, or township road. The driver expects to drive each of these with different levels of caution.

What the driver expects on a road is greatly influenced by what he experienced on the previous section of road. The presence or absence of traffic control devices, road surface type, condition and width, or narrow bridges and culverts is what the driver expects for the next one-half to one mile.

Driver expectancy is affected not only by the very recent experience, but also by those things drivers have learned through the past experiences. For example, advance railroad crossing signs are located at railroad grade crossings, stop signs are red, and curve warnings are yellow and diamond shaped. The consistent use and placement of traffic control devices can do a great deal toward assuring that the driver expectancy is correct.

Positive Guidance
Positive guidance is the concept that a driver can be given sufficient information where and when needed and in a form which can be best used to avoid unsafe conditions. Positive guidance can be given the driver through combinations of signs, hazard markers, safe speed advisory signs, and probably most important of all, the view of the road ahead. If drivers could see curves far enough ahead, approaching cars on crossroads, and intersections hidden by the crest of a hill, there would be little need for anything more than an occasional stop or yield sign on low volume roads.

Consistency
Consistency relates to the “sameness” of the nature of the road from one section to another. Inconsistencies are sudden changes in the nature of the road. Inconsistencies are contrary to a driver’s expectancy, thus either the road should be made consistent, which is usually impractical, or something should be done to change the driver’s expectancy. For example, in the case of a hidden curve in a nearly straight roadway, the use of a curve warning sign, with perhaps an advisory speed plate will correctly change the driver’s expectancy. After seeing the curve sign, the driver expects the curve, knows whether the road curves left or right, and knows the speed at which the curve can be safely driven.

Section 4: DEFINITIONS

Average Annual Daily Traffic (AADT). The total volume of traffic passing a point or segment of a highway facility in both directions for one year divided by the number of days in the year. Normally, periodic daily traffic volumes are adjusted for hours of the day counted, days of the week, and seasons of the year to arrive at average annual daily traffic.

Conventional Road. a street or highway other than a low-volume road, expressway, or freeway.

Department. This means the Illinois Department of Transportation including Divisions, Districts, Regions, and Offices.

Engineering Judgment. The evaluation of available pertinent information, and the application of appropriate principles, provisions, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.

Engineering Study. The comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, provisions, and practices as contained in the MUTCD and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.

Highway. Any public way for vehicular travel which has been laid out in pursuance of any law of this State, or of the Territory of Illinois, or which has been established by dedication, or used by the public as a highway for 15 years, or which has been or may be laid out and connect a subdivision or platted land with a public highway and which has been dedicated for the use of the owners of the land included in the subdivision or platted land where there has been an acceptance and use under such dedication by such owners, and which has not been vacated in pursuance of law. The term "highway" includes rights of way, bridges, drainage structures, signs, guard rails, protective structures and all other structures and appurtenances necessary or convenient for vehicular traffic. A highway in a rural area may be called a "road", while a highway in a municipal area may be called a "street".

Local Public Agency (LPA). Any agency that is eligible to receive Motor Fuel Tax (MFT) funds according to 35 ILCS 505/8. These funds are distributed by the Department based on formula.

Low Volume Road. A low volume road:

- shall be a facility lying outside of built up areas of cities, towns, and communities;
- shall have a traffic volume of less than 400 AADT;
- shall not be a freeway, an expressway, and interchange ramp, a freeway service road, a road on a designated State highway system, or a residential street in a neighborhood; and
- shall be classified as either paved or unpaved.

Plaque. a traffic control device intended to communicate specific information to road users through a word, symbol, or arrow legend that is placed immediately adjacent to a sign to supplement the message on the sign. The difference between a plaque and a sign is that a plaque cannot be used alone. The designation for a plaque includes a “P” suffix.

Road District. Roads which are part of the township and district road system are under the several road districts subject to the supervision by the County and the Department as provided in the Illinois Highway Code.

Sign. Any traffic control device that is intended to communicate specific information to road users through a word, symbol, and/or arrow legend. Signs do not include highway traffic signals, pavement markings, delineators, or channelization devices.

CHAPTER 2: SIGN AUTHORIZATION PROCEDURE

Section 1: GENERAL

Placement of traffic control devices and signs authorized by the "Illinois Highway Code" or by the "Illinois Vehicle Code" on township or road district highways shall be subject to the written approval of the County Engineer or Superintendent of Highways. A placement program should be prepared in cooperation with the engineer/superintendent.

In order to establish a signing program, the following is required:

- Designate through highways.
- Determine where stop and/or yield intersections are warranted and the quantity of each sign needed.
- Determine location and type of other regulatory, warning and guide signs and the quantity needed.
- Secure approval of the County Engineer or County Superintendent of Highways. (See Exhibit II-1 for example letter.)
- Acquire signs and sign supports.
- Erect signs in accordance with the current Manual on Uniform Traffic Control Devices.

The following are a few general notes regarding some sign types and their applications. Chapters 4, 5, and 6 provide more detailed guidelines and information about commonly used signs.

A speed limit on road district roads which differs from statutory maximum limits can be established only by the county board of the county in which the road district is situated. The county board can establish an altered limit by ordinance. Guidelines for alterations of speed limits by local authorities is governed by Section 11-604 of the Illinois Vehicle Code (625 ILCS 5/11-604).

The law specifically sets the speed limit through school zones at 20 miles per hour "during school days when children are present." This limit is not applicable unless the appropriate signs are posted.

Similarly, any restriction of weight on highways or structures under township jurisdiction is not effective unless and until the necessary signs are erected and maintained. Before erecting weight limit signs, written approval must be obtained from the County Engineer or County Superintendent of Highways.

The use of warning and guide signs, with the exception of railroad advance warning signs as indicated in Chapter 5, is discretionary with the highway commissioner, as there are no specific warrants which require signing. Signs of this type, therefore, should be placed at locations believed to be potentially unsafe. Once erected, however, it is essential that the warning sign be maintained as long as the potentially unsafe condition exists.

Section 2: EXAMPLE SIGN REQUEST LETTER

Mr. Hank Hill
County Engineer
Austin, IL

Dear Sir,

If accordance with Section 6-201.16 (605 ILCS 5/6-201.16) of the Illinois Highway Code, I request formal approval to place, erect and maintain traffic control devices and signs authorized by the "Illinois Highway Code" and the "Illinois Vehicle Code" on township or road district roads under my jurisdiction, at the following locations:

Type of Device	Location
Stop signs	On Tropicana Rd. at Frontier Rd
Stop signs (4 way)	Dunes Rd. at Sands Dr.
Yield signs	On Thunderbird Rd. at Las Vegas Rd.
School speed limit signs	Sahara Dr. at Oasis School

_____

It is understood that the traffic control devices and signs will conform to the requirements of the current "Manual on Uniform Traffic Control Devices for Streets and Highways and the "Illinois Supplement to the National Manual on Uniform Traffic Control Devices," and that said devices shall be maintained in accordance with the MUTCD.

Very truly yours,

_____
Highway Commissioner

APPROVED

This___day of_____,_____

County Engineer/Superintendent of Highways

CHAPTER 3: GENERAL REQUIREMENTS

The use of signs on road district roads is to provide directions, to inform motorists of hazards that are not readily apparent, and to call attention to regulations, restrictions, and other conditions.

Signs are classified according to use as follows:

REGULATORY SIGNS - Shall be used to provide the driver notice to traffic laws or regulations and indicate the applicability of the legal requirements that apply at a given place or on a given highway. To disregard these signs is punishable as an infraction, violation, or misdemeanor.

WARNING SIGNS - Call attention to unexpected conditions on or adjacent to a highway or a street and to situations that might not be readily apparent to road users. Warning signs alert road users to conditions that might call for a reduction of speed or on an action in the interest of safety and efficient traffic operations.

GUIDE SIGNS - Essential to direct road users along streets and highways, to inform them of intersecting routes, to direct them to destinations, identify nearby streams, parks, forests, and historic sites, and generally to give such information as will help them along their way in the most simple, direct manner possible.

Section 1: SIGN ERECTION AND PLACEMENT

When erecting signs, it is essential that the location be determined which will provide maximum visibility. Positions cannot be standardized as signs must in all cases be placed in the most advantageous positions depending upon the highway design and alignment.

The following are some general rules for locating signs:

- Locate signs on the right-hand side of the roadway where the driver is in a habit of looking for them.
- Locate signs to optimize nighttime visibility and minimize the effects of mud spatter.
- Locate signs so they do not obscure each other or are hidden from view by other roadside objects.
- Locate decision making signs far enough apart to allow sufficient time to make the decision.

Signs are to be installed individually on separate posts or mountings, except where one sign supplements another, or where signs must be grouped.

Signs should be located so that they:

- Are outside the clear zone unless placed on a breakaway or yielding support;
- Optimize nighttime visibility;
- Do not obscure each other; and
- Are not hidden from view.

Care should be taken not to install too many signs. Regulatory and warnings signs should be used conservatively since these signs, if used to excess, tend to lose their effectiveness. However, the frequent use of route markers and directional signs, to keep drivers aware of their location, will not lessen their value.

Mounting Height
Signs erected in rural areas shall be mounted at a height of at least 5 feet above the level of the pavement or roadway edge, measured to the bottom of the sign. In areas where there is parking, pedestrian traffic or obstructions to view, the mounting height shall be at least 7 feet. The height to the bottom of a secondary sign may be 1 foot less that the heights specified above.

Lateral Offset
For ground-mounted signs, the minimum lateral offset should be 12 feet from the edge of the traveled way. If a shoulder wider than 6 feet exists, the minimum lateral offset for ground-mounted signs should be 6 feet from edge of the shoulder.

The minimum lateral offset is intended to keep trucks and cars that use the shoulders from striking the signs or supports.

All supports should be located as far as practical from the edge of the shoulder. Advantage should be taken to place signs behind existing roadside barriers, on over-crossing structures, or other locations that minimize the exposure of the traffic sign supports.

Posting and Posts Mounting
Sign posts and their foundations and sign mountings must be constructed to hold signs in a correct and permanent position, and to resist swaying in the wind or removal by vandalism. A single post may be used for the erection of up to 24 inch diamond shaped signs, signs with a horizontal dimension of 30 inches or less, and individual signs with areas of 6.25 square feet or less.

All posts should be breakaway. The following are acceptable types of sign posts:

- Tubular steel posts;
- Telescoping steel post no greater than 2 ¼ in by 2 ¼ in ;
- U-channel posts;
- 4 in by 4 in wood posts; and
- 4 in by 6 in wood posts with the 6 in side parallel to the roadway with appropriately drilled holes to ensure that the post is breakaway.

Section 2: RETROREFLECTIVITY

Regulatory, warning, and guide signs shall be retroreflective to show the same shape and color both by day and night, unless specifically stated in the MUTCD.

Retroreflectivity may be accomplished by means of:

1. Reflector “buttons” or similar units set into the symbol, message and/or border; or
2. retroreflective sheeting.

Reflector buttons in a highway sign are individual reflecting units arranged in rows or patterns to form letters, symbols, or borders. They are made of glass or transparent plastic with lenses or prisms.

High Intensity Prismatic sheeting meeting Article 1091 of the Standard Specifications shall be used.

Section 3: MINIMUM RETROREFLECTIVITY LEVELS

Most traffic signs shall meet the minimum level of retroreflectivity outlined in the MUTCD. Including these minimum levels in the MUTCD does not imply that a highway agency must measure the retroreflectivity of every sign. Rather, the MUTCD language describes six methods that highway agencies may use to maintain traffic sign retroreflectivity at or above the minimum levels. However, highway agencies should adopt a consistent method.

Furthermore, the new language recognizes that there may be some individual signs that do not meet the minimum retroreflectivity levels at a particular point in time. As long as the highway agency with jurisdiction is maintaining signs in accordance with the MUTCD, the highway agency will be considered to be in compliance.

Assessment or Management Methods

1. Visual Nighttime Inspection – The retroreflectivity of an existing sign is assessed by a trained sign inspector conducting a visual inspection from a moving vehicle during nighttime conditions. Signs that are visually identified by the inspector to have retroreflectivity below the minimum levels should be replaced.
2. Measured Sign Retroreflectivity – Sign retroreflectivity is measured using a retroreflectometer. Signs with retroreflectivity below the minimum levels should be replaced.
3. Expected Sign Life – When signs are installed, the installation date is labeled or recorded so that the age of a sign is known. The age of the sign is compared to the expected sign life. The expected sign life is based on the experience of sign retroreflectivity degradation in a geographic area compared to the minimum levels. Signs older than the expected life should be replaced.
4. Blanket Replacement – All signs in an area/corridor, or of a given type, should be replaced at specified intervals. This eliminates the need to assess retroreflectivity or track the life of individual signs. The replacement interval is based on the expected sign life, compared to the minimum levels, for the shortest-life material used on the affected signs.
5. Control Signs – Replacement of signs in the field is based on the performance of a sample of control signs. The control signs might be a small sample located in a maintenance yard or a sample of signs in the field. The control signs are monitored to determine the end of retroreflective life for the associated signs. All field signs represented by the control sample should be replaced before the retroreflectivity levels of the control sample reach the minimum levels.
6. Other Methods – Other methods developed based on engineering studies can be used.

An agency may choose to use either an assessment method or a management method, or a combination of the two. Agencies may develop other methods as long as they are documented in an engineering study and correspond to the values in the MUTCD.

Exempt Signs

Highway agencies may exclude the following signs from the retroreflectivity maintenance guidelines:

1. Parking, Standing, and Stopping signs (R7 and R8 series);
2. Walking/Hitchhiking/Crossing signs (R9 series, R10-1 through R10-4b);
3. Adopt-A-Highway signs;
4. All signs with blue or brown backgrounds; and
5. Bikeway signs that are intended for exclusive use by bicyclists or pedestrians.

Additional Information

The Illinois Technology Transfer Center conducts a ½ day workshop that provides more detailed information about the regulation and compliance methods. More information is available at www.fhwa.dot.gov/retro.

Section 4: MAINTENANCE AND INSPECTION

All traffic signs should be kept in proper position, clean, legible, and should have adequate reflectivity at all times. Damaged or deteriorated signs should be replaced without delay.

Poorly maintained signs lose their effectiveness in functioning as traffic control devices. Signs which are damaged, defaced, dirty, or missing are ineffective and tend to discredit the agency responsible for the signs.

To assure adequate maintenance, a suitable schedule of inspection (both day and night) should be established. Semi-annual inspections have generally been sufficient. However, the more frequently inspections are done, even on a weekly or monthly basis, the less likely that deficient signing conditions will exist and the potential for legal action to be taken against an agency due to substandard signing, and resultant accidents or injuries will be reduced.

The following areas have been found to often result in court cases for LPAs:

1. Missing, damaged, obstructed, or hidden STOP signs.
2. Stop signs improperly placed at a wrong height, location angle, or not of proper quality (non-retroreflective).
3. Absence of “STOP AHEAD” signs where necessary.
4. Shrubbery or other obstructions restricting view of signs or road conditions.
5. Failure to warn of “T” intersections.
6. Lack of an inspection program to determine various road defects and signing problems.

Situations listed above should be identified and corrected as soon as possible.

Inspections may also be conducted on a daily basis as employees of the LPA drive the township road system. Signs which have been damaged, deteriorated, or obscured should be replaced at the first opportunity.

Nighttime inspections should also be conducted to determine whether all signs are functioning properly at night.

Special care should be taken to ensure that weeds, trees, shrubbery, construction, or snow do not obstruct the face of any sign. If these conditions are found to be present, the obstruction should be cleared as soon as possible.

Section 5: INVENTORY

An inventory should be kept of all signs, inspections, and sign maintenance activities. Crash records should also be kept to help identify possible deficiencies within the road system.

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CHAPTER 4: REGULATORY SIGNS

Regulatory signs inform highway users of traffic laws or other regulations and indicate the applicability of legal requirements that would not otherwise be apparent. These signs shall be erected at those locations where the regulations apply and should be mounted in a manner in which they can easily be seen and legible to the motorists whose actions they are to govern.

Standard dimensions for all signs have been determined and are specified in the MUTCD. Sign sizes listed in this booklet are the minimum sizes for low volume roads and streets on which 85% of traffic travels at speeds of 35 mph (60 kph) or less. Larger signs should be used as need dictates. The Illinois Supplement to the MUTCD includes additional Illinois standard signs. Regulatory signs shall be retroreflective.

Section 1: STOP SIGNS (R1-1) AND ALL WAY PLAQUE (R1-3P)

MUTCD Reference: 2B.05, 2B.06, 2B.07, and 5B.02
Size Conventional Road and Low Volume Road: 30 in X 30 in

625 ILCS 5/11-302 grants authority to “local authority and road district highway commissioners” to designate any street or highway under their jurisdiction as a through highway, and to require all vehicles to stop or yield before entering or crossing such a through highway.

The STOP sign (Figure IV-1) is octagonal in shape, has a red background, and carries the word “STOP” in white letters. Secondary messages shall not be used on STOP sign faces.

In special cases, such as high crash locations and poor sight distance, a larger size sign, 36 in X 36 in , may be desirable.

STOP signs should not be used for speed control. Portable STOP signs shall not be used except for emergency situations and temporary traffic control purposes.

Prior to the installation of STOP signs, consideration should be given to less restrictive measures, such as the YIELD sign where a full stop is not necessary at all times. Existing STOP sign locations should be reviewed periodically to determine whether, due to changed conditions, a less restrictive control could accommodate the traffic demands safely and more effectively.

STOP signs on the minor-street approaches should be used if engineering judgment indicates that a stop is always required because of one or more of the following conditions:

1. The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;
2. A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or
3. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.

Multi-way stop control is used where the volume of traffic on the intersecting roads is nearly equal.

The decision to install multi-way stop control should be based on an engineering study.

The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

1. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
2. Five or more reported crashed in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.
3. Minimum volumes:
    a. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day, and
    b. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour, but
    c. If the 85th-perscentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in items 3a and 3c.
4. Where no single criterion is satisfied, but where Criteria 2, 3a, and 3b are all satisfied to 80 percent of the minimum values. Criterion 3c is excluded from this condition.

Other criteria that may be considered in an engineering study include:

1. The need to control left-turn conflicts;
2. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
3. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
4. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

The STOP sign shall be installed on the right side on the approach to which it applies. The STOP sign shall be located as close as practical to the intersection it regulates, while optionizing its visibility to the road user it is intended to regulate. At minor crossroads or “T” intersections, the stop sign should be set back from the through highway a minimum distance of 12 feet .

The STOP AHEAD sign (W3-1), shown in Figure IV-2 shall be used in advance of any STOP sign that is not visible for sufficient distance to permit the driver to bring a vehicle to a stop. Obstruction of view due to horizontal or vertical curves, parked vehicles, or foliage, and high approach speeds, shall be considered in determining the need for the erection of this sign. The STOP AHEAD sign shall be a minimum of 30 inches X 30 inches .

STOP AHEAD signs on township roads which intersect with a State, County, or Municipal highway shall be maintained by the township unless an intergovernmental maintenance agreement with another agency is in effect.

In the event the township insists that the Department maintain the signs, an agreement must be entered into with the appropriate district office. The agreement will allow the Department to maintain the signs but requires the township to perform all inspections and notify the Department when maintenance is required. When this agreement takes effect, the Department will no longer patrol the township roads for the purpose of inspecting the signs.

At a multi-way stop intersection, each STOP sign may be supplemented by a ALL WAY plaque The ALL WAY plaque shall only be used if all intersection approaches are controlled by STOP signs.

The CROSS TRAFFIC DOES NOT STOP (W4-4P) plaque may be used in combination with a STOP sign when engineering judgment indicates that conditions are present that are causing or could cause drivers to misinterpret the intersection as an all-way stop. Alternative messages such as TRAFFIC FROM LEFT (RIGHT) DOES NOT STOP (W4-4aP) or ONCOMING TRAFFIC DOES NOT STOP (W4-4bP) plaque may be used when such messages more accurately describe the traffic controls established at the intersection.

Section 2: YIELD SIGNS (R1-2)

MUTCD Reference: 2B.08
Size Conventional Road: 36 in X 36 in X 36 in
Size Low Volume Road: 30 in X 30 in X 30 in

The YIELD sign, (R1-2) shown in Figure IV-3, assigns right-of-way to traffic on certain approaches to an intersection. Vehicles controlled by a YIELD sign need to slow down or stop when necessary to avoid interfering with conflicting traffic.

The YIELD sign shall be an equilateral triangle with one point downward, having a red border and white interior with the word “Yield” in red inside the border.

The YIELD sign may be erected at an entrance to an intersection when an engineering and traffic investigation warrants that preference be given to traffic on a through street or highway designated in accordance with Section 11-302 of the Illinois Vehicle Code (625 ILCS 5/11-302).

The YIELD sign shall not be used as a substitute for a STOP sign where a STOP sign is warranted.

YIELD signs shall not be used:

- Where visibility limitations or prevailing high speeds or volumes of traffic make a full stop necessary for safety;
- Against the major flow of traffic at an intersection. However, a YIELD sign may be installed to control a major traffic movement where the majority of drivers in that movement are making right turns;
- On the approaches of more than one of the intersecting streets or highways;
- Where there are stop signs on one or more approaches of an intersection; or
- On through highways.

YIELD signs may be installed:

- On the approaches to a through street or highway where conditions are such that a full stop is not always required;
- At the second crossroad of a divided highway, where the median width at the intersection is 30 ft or greater. In this case, a STOP or YIELD sign may be installed at the entrance to the first roadway of a divided highway, and a YIELD sign may be installed at the entrance to the second roadway;
- For a channelized turn lane that is separated from the adjacent travel lanes by an island, even if the adjacent lanes at the intersection are controlled by a highway traffic control signal or by a STOP sign;
- At an intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign; or
- Facing the entering roadway for a merge-type movement if engineering judgment indicates that control is needed because acceleration geometry and/or sight distance is not adequate for merging traffic operation.

At intersections, the YIELD sign should be set back from the through highway a minimum distance of 12 feet . If the visibility of a YIELD sign at any location is restricted, the sign shall be erected as specified and a YIELD AHEAD sign (W3-2), shown in Figure IV-2, shall be erected in advance of the YIELD sign.

Where two roads intersect at an acute angle, the YIELD sign shall be positioned at an angle or shielded if necessary so that the message cannot be seen by the traffic to which it does not apply.

Section 3: SPEED LIMIT SIGNS (R2-1)

MUTCD Reference: 2B.13
Size Conventional Road: 24 in X 30 in
Size Low Volume Road: 18 in X 24 in

Speed Limit signs (Figure IV-4) are intended to inform motorists of the maximum statutory speed limit established in Section 11-601 if the Illinois Vehicle Code (625 ILCS 5/11-601), or a speed limit altered on the basis of an appropriate engineering and traffic investigation, in accordance with Section 11-604 (625 ILCS 5/11-604).

No change in the basic statutory speeds on road district roads shall become effective until the prescribed action has been taken by the county board and appropriate signs are erected. The speed limit shall be posted in multiples of 5 miles per hour. When a speed limit is to be posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic.

In order to determine the proper speed limit on the basis of an engineering and traffic investigation, the following factors should be considered:

- Road surface characteristics, shoulder condition, grade, alignment, and sight distance.
- The 85th percentile speed and pace speed.
- Roadside development and environment, and roadside friction.
- Safe speed for curves or hazardous locations within the clear zone.
- Parking practices and pedestrian activity.

- Reported crash experience for at least a 12-month period.

Speed Limit signs shall be located at the points of change from one speed limit to another. These signs shall not be erected until the speed limits are approved and officially authorized.

A Speed Reduction sign (W3-5, W3-5a) should be used to inform road users of a reduced speed zone when engineering judgment indicates the need for advance notice in order to comply with the speed limit posted ahead. These signs should be erected at distances in advance of Speed Limit signs as determined in Chapter 5, Table V-1 of this booklet.

Section 4: SCHOOL AREA SIGNING (S SERIES)

MUTCD Reference: 7B

The School Advance Warning assembly (S1-1 with supplemental plaque), shown in Figure IV-5, should be used in advance of locations where school buildings or grounds are adjacent to the highway, except where a physical barrier (e.g., fencing) separates school children from the highway. The School Advance Warning assembly shall be used in advance of any installation of the School Crossing Warning assembly. If used, install the School Advance Warning assembly not less than 150 ft nor more than 700 ft in advance of the school grounds or school crossings.

Use the SCHOOL SPEED LIMIT IS 20 MPH ON SCHOOL DAYS WHEN CHILDREN ARE PRESENT (S4-I100) sign to establish speed zones authorized under 625 ILCS 5/11-605. The speed zone should be used where elementary through high school buildings, or grounds devoted primarily to normal school day activities, are adjacent to the highway, or where groups of children cross the highway enroute to and from a school not adjacent to the highway. Do not sign areas that are devoted primarily to athletic or other extracurricular activities as school speed zones. A SCHOOL (S1-1) sign shall be placed in advance of a school speed zone using *ILMUTCD* Table 2C-4 to determine the placement. In addition, a REDUCED SCHOOL SPEED ZONE AHEAD (S4-5, S4-5a) sign shall be placed in advance of the first school speed limit sign where the posted speed limit in the area is greater than 30 mph. This sign should be installed 500 to 600 ft in advance of the school speed zone when practical. A FINES HIGHER (R2-6P) plaque shall be installed under the first school speed limit 20 mph sign. An END SCHOOL ZONE (S5-2) sign shall be installed at the end of the designated 20 mph school speed zone. Above this sign, a standard Speed Limit (R2-1) sign shall be installed to remind drivers of the regulatory speed limit. A CELL PHONE USE PROHIBITED (R2-I110) may be installed separately or under the SCHOOL (S1-1) sign. See Figure 39-2D for a typical application for school zone signage.

The School Crosswalk Warning assembly should be installed at marked crosswalks, including signalized locations used by students going to and from school, as determined by an engineering study. The School Crosswalk Warning assembly (S-1 with diagonal arrow) shall not be installed on approaches at crossings controlled by a STOP sign. Only crossings adjacent to schools and those on established school pedestrian routes may be signed. Where used, the sign will be erected at the crosswalk, or as close to it as practical.

The School Advance Warning assembly (S1-1 with supplemental plaque), shown in Figure IV-5, should be used in advance of locations where school buildings or grounds are adjacent to the highway, except where a physical barrier (e.g., fencing) separates school children from the highway. The School Advance Warning assembly shall be used in advance of any installation of the School Crossing Warning assembly. If used, install the School Advance Warning assembly not less than 150 ft nor more than 700 ft in advance of the school grounds or school crossings.

Section 5: ROAD CLOSED (R11-2) AND ROAD ENDS (R11-I100) SIGNS

MUTCD Reference: 2B.58
Size Conventional Road: 36 in X 36 in
Size Low Volume Road: 30 in X 30 in

The temporary ROAD CLOSED sign (Figure IV-6) is to be used to mark roads that have been closed to all traffic (except contractor's equipment and other authorized vehicles) either because of construction or maintenance operations, or because of a temporary emergency such as high water or a landslide.

The sign should be mounted on a retroreflective orange and white Type III Barricade in or near the center of the roadway, at a minimum height of 1 foot above the pavement elevation although higher mounting heights are desirable. The DETOUR ARROW sign, if a detour has been designated, is usually placed just below the ROAD CLOSED sign. Where the sign faces through traffic, an Advance Road Closed warning sign with the secondary legend AHEAD shall be installed and, if applicable, an advance DETOUR warning sign should be used.

An intersecting street name or a well-known destination may be substituted for the XX MILES AHEAD legend in urban areas. The word message BRIDGE OUT may be substituted for the ROAD CLOSED legend where applicable

A ROAD ENDS sign should be used on a permanent road closure. It is recommended that the sign be mounted on a Type III Barricade when some significant hazard exists beyond the closure point. The barricade shall be striped red and white and be retroreflective. The sign should be mounted on the barricade as close to the center of the roadway as possible at a minimum distance of 1 foot above the pavement elevation, measured to the bottom of the sign, although higher mounting heights are desirable.

When the road has been removed and a hazard does not exist, a ROAD ENDS sign along with two or more retroreflective Type I Object Markers may be used to permanently close a low volume road. The sign should be mounted on an acceptable post in the center of the roadway with object marker signs on both sides. The distance between the pavement and bottom of the sign should be a minimum of 1 foot although higher mounting heights are desirable.

An example of a Long Term Bridge Closure and a Low Volume Road Closure may be found in Figures IV-7 and IV-8, respectively. Suggested approach signing is also shown.

Section 6: WEIGHT LIMIT SIGNS

MUTCD Reference: 2B.59
Size Conventional Road: 36 in X 24 in
Size Low Volume Road: 24 in X 30 in

The WEIGHT LIMIT XX TONS (R12-1) sign, shown in Figure IV-9, shall be used at structures and or highways when a single weight limit has been authorized. The sign shall be located immediately in advance of the section of highway to which it applies. In case of an extended length of restricted roadway, it shall be placed on the right hand side approximately 25 feet beyond intersecting roads, so as to be visible to all vehicles turning onto the restricted roadway.

The sign shall be located within 500 feet of the structure to which it applies. However, the location should not be closer than 50 feet to the structure.

The Seasonal Weight Limit (R12-I104) sign, shown in Figure IV-10, shall be used on roadways seasonal weight restrictions provided under 625 ILCS 5/15-316. The signs shall be erected at each end of the portion of roadway affected and at such intermediate locations as determined by engineering judgment to be necessary to adequately inform motorists.

The SPECIFIC WEIGHT LIMIT (R12-I-100 or R12-I101) sign, not shown, is to be used where multiple separate weight restrictions based on type of vehicle are to be posted. The Department either upon request from a local authority shall, or upon its own initiative may, conduct an investigation of the bridge and determine and declare the maximum weight of vehicles that the bridge can withstand. The Department will then cause or permit suitable signing stating maximum allowable weights to be erected and maintained

Section 7: PENALTY FOR DUMPING ON PUBLIC HIGHWAYS (R15-I100)

The use of the PENALTY FOR DUMPING ON PUBLIC HIGHWAYS sign, shown in Figure IV-11, is authorized by 605 ILCS 5/9-121. This sign should be erected so as to provide the most efficient display of the message and may be parallel or at right angles to the pavement. This sign should be used only at such locations where dumping is likely to occur.

Section 8: ENGINE BRAKING SIGN

MUTCD Reference: 2B.I80

The use of the ENGINE BRAKING (R5-I106) sign is authorized by 625 ILCS 5/12-602.1. A county or municipality may furnish, install and maintain ENGINE BRAKING signs along streets and highways under their jurisdiction. The ENGINE BRAKING signs shall not be installed on freeways or interstate highways under the jurisdiction of the Department. With permission of the Department, the ENGINE BRAKING signs may be installed and maintained along roads or streets, other than freeways and interstates, under the jurisdiction of the Department in accordance with 625 ILCS 5/11-303(b).

Section 9: UNSIGNALIZED PEDESTRIAN CROSS-WALK SIGNS

MUTCD Reference: 2B.11 and 2B.12
Size Conventional Road: 36 in X 48 in

The use of STOP HERE FOR PEDESTRIANS (R1-5b or R1-5c), IN-STREET PEDESTRIAN CROSSING (R1-6a), and OVERHEAD PEDESTRIAN CROSSING (R9-1a) signs are authorized by 625 ILCS 5/11-1002 at unsignalized pedestrian crosswalks. Therefore, signs using yield symbol or yield text (R1-5, R1-5a, R1-6, or R1-9) shall not be used at unsignalized pedestrian crosswalks.

Section 10: PARK ZONE SIGNS

MUTCD Reference: 2B.I70 and 2C.I70

The PARK ZONE SPEED LIMIT 20 WHEN CHILDREN ARE PRESENT (R2-I108) sign, shown in Figure IV-11, and he limited park speed zone authorized by 625 ILCS 5/11-605.3 may be established near the parks and recreation facilities and areas or any lands owned or operated by a park district that are used for recreational purposes, as well as on the portions of any street or intersection adjacent to a park zone that are under the control of a LPA and have been designated and approved by ordinance or resolution as a park zone street. If a street already has a posted speed limit lower that 20 mph, then the lower limit may be used for that park zone street. Section 2B.I70 and Section 2C.I70 of the ILMUTCD establishes sign guidelines. See Figure 39-2C for a typical application for park zone signage.

CHAPTER IV REGULATORY SIGN FIGURES

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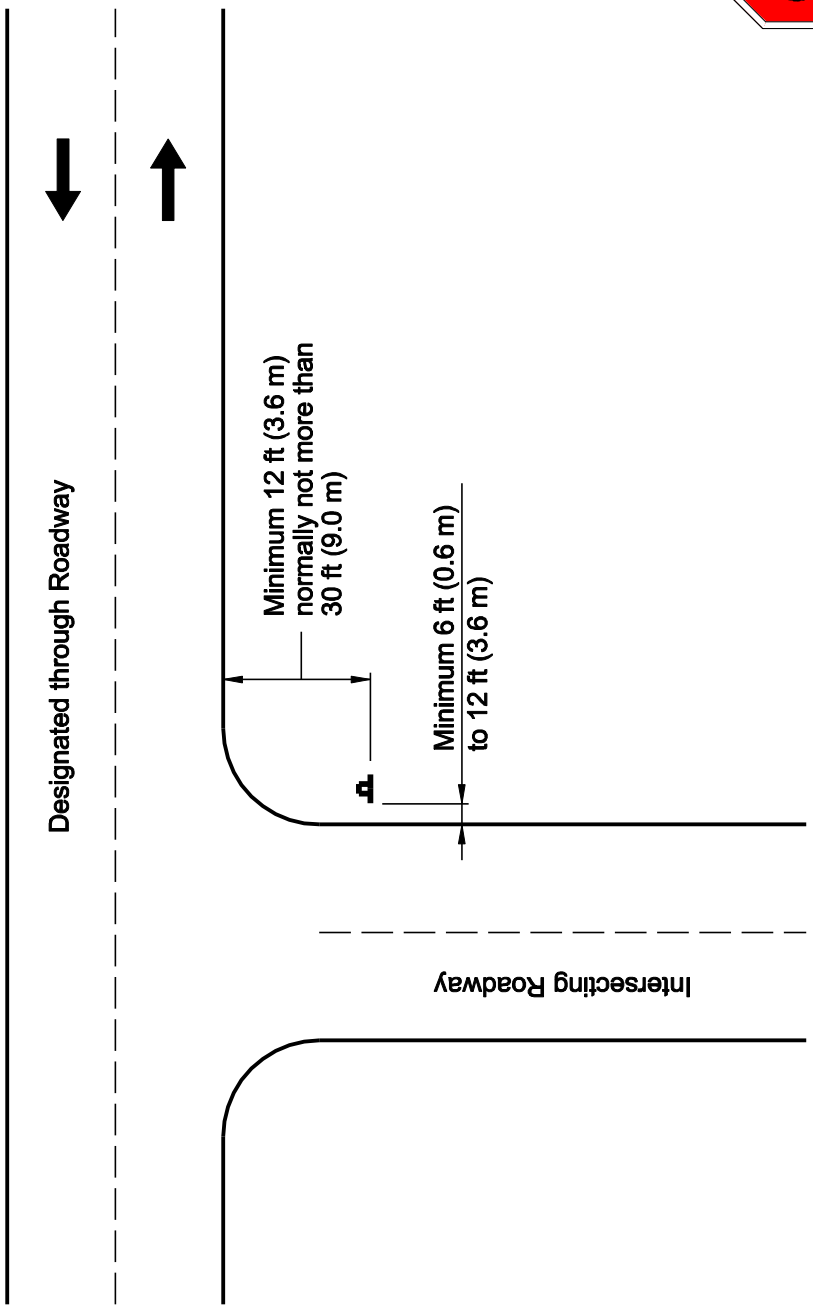
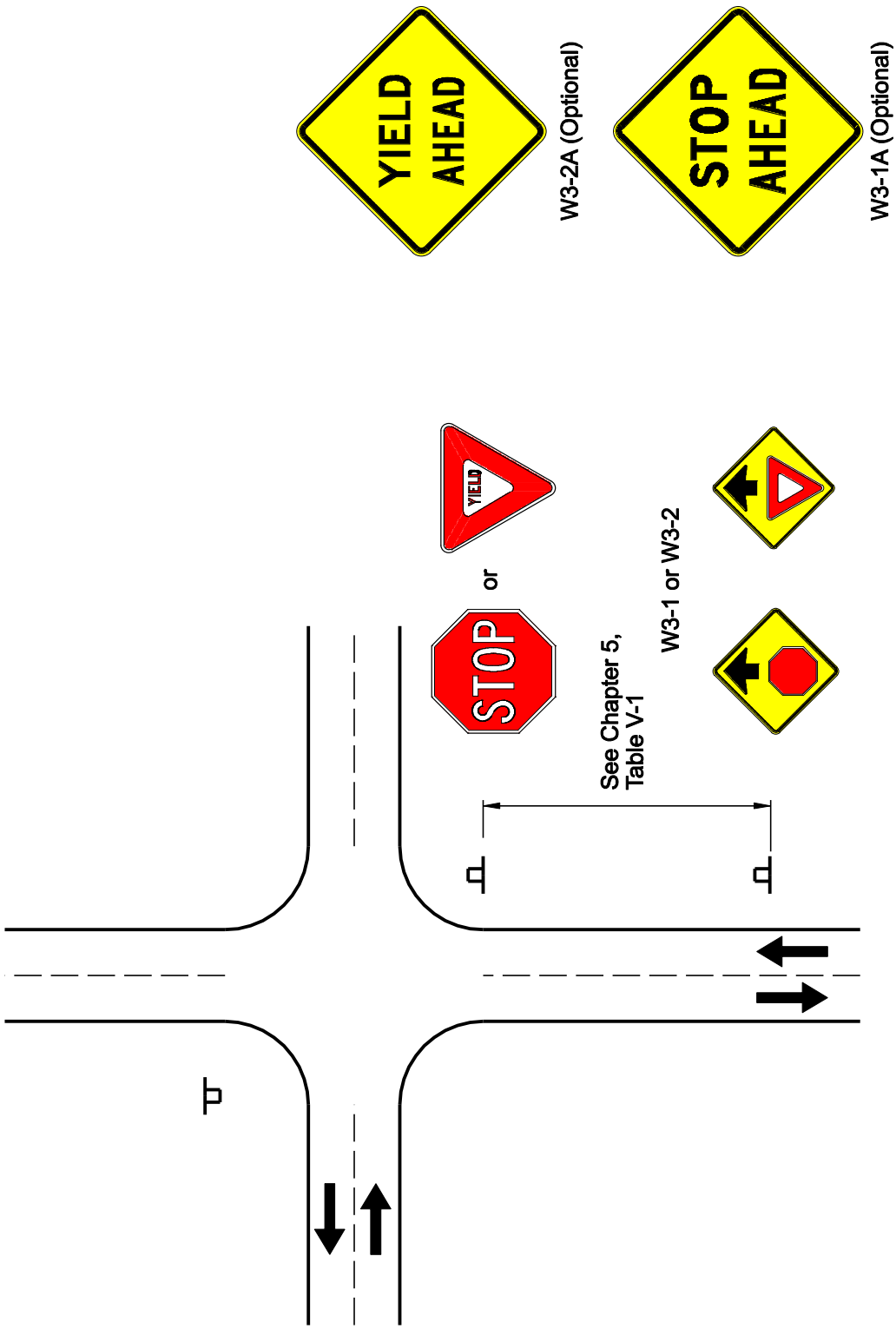
FIGURE IV-1 STOP



R1-1

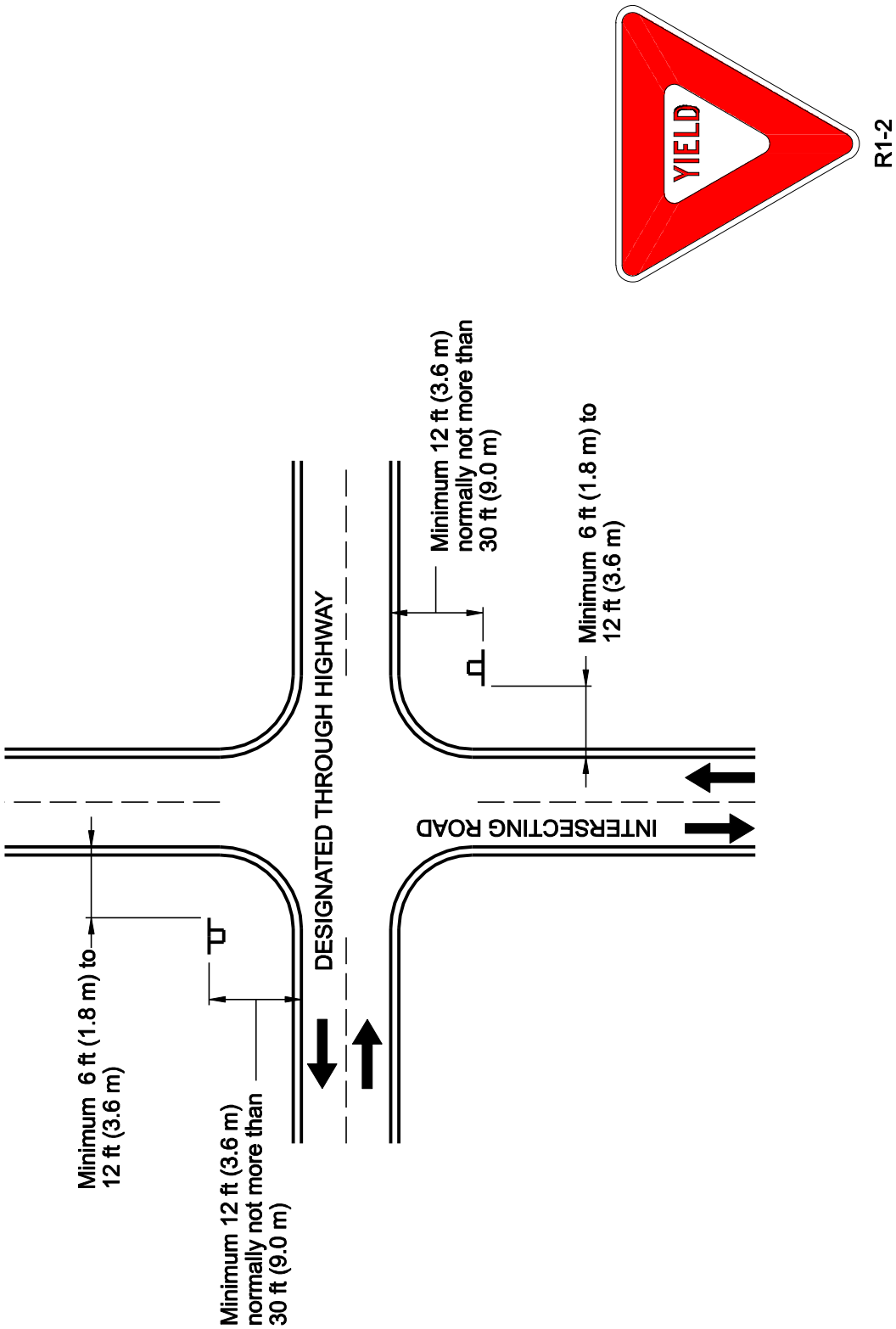
REGULATORY SIGN
STOP
(R1-1)

FIGURE IV-1



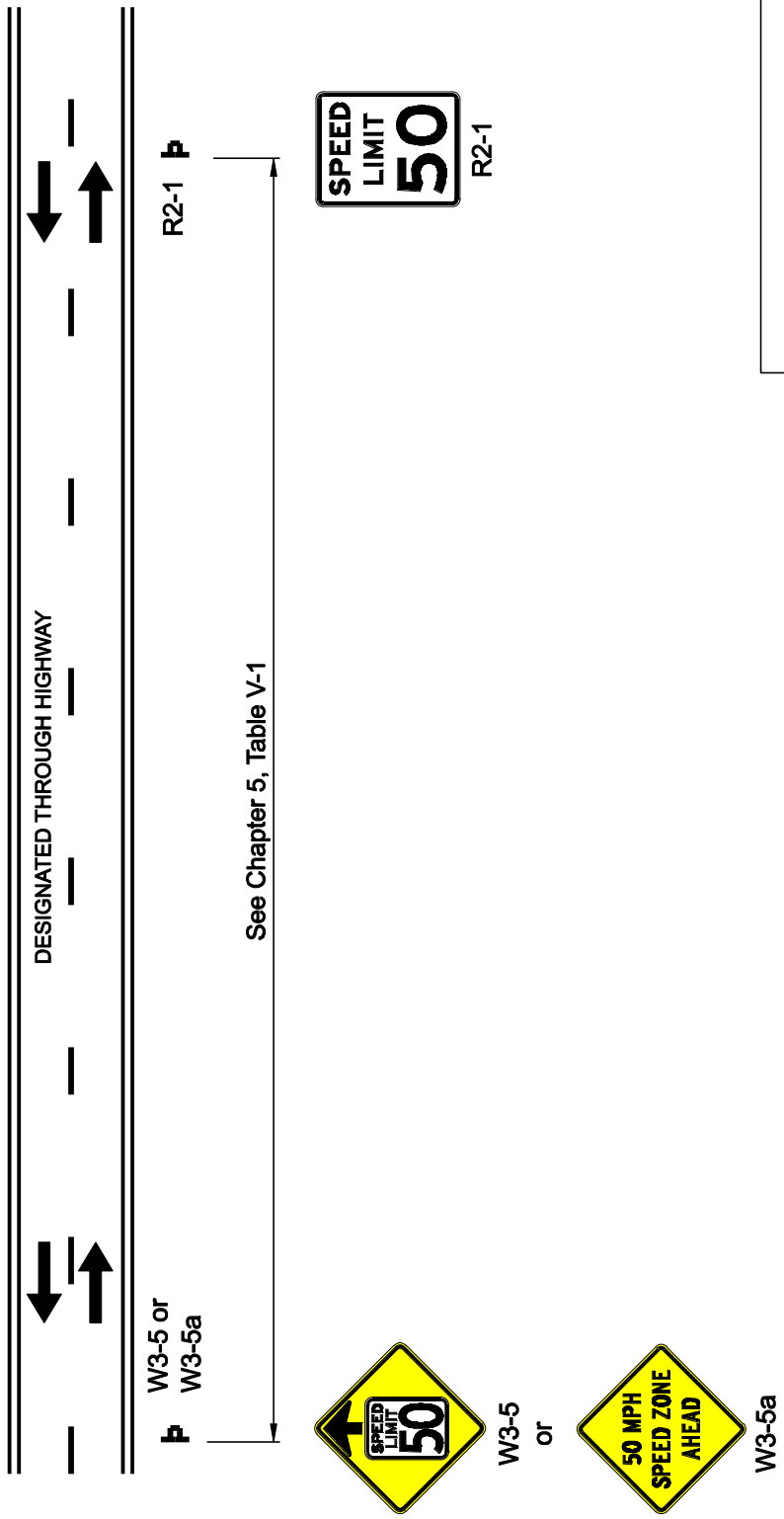
WARNING SIGNS
STOP AHEAD (W3-1)
YIELD AHEAD (W3-2)

FIGURE IV-2



REGULATORY SIGN
YIELD
(R1-2)

FIGURE IV-3



SPEED LIMIT
(R2-1)
SPEED REDUCTION
(W3-5)

FIGURE IV-4

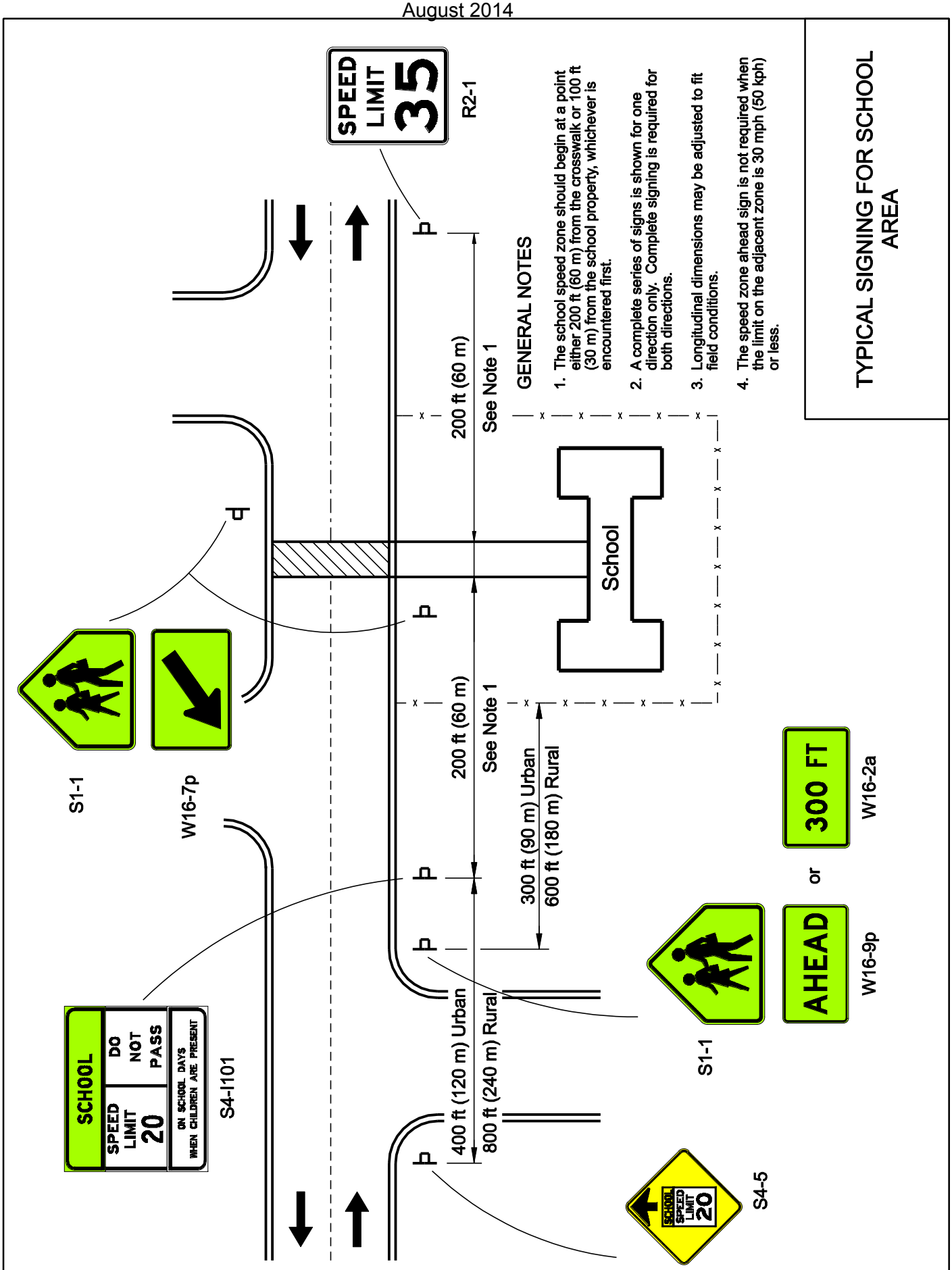
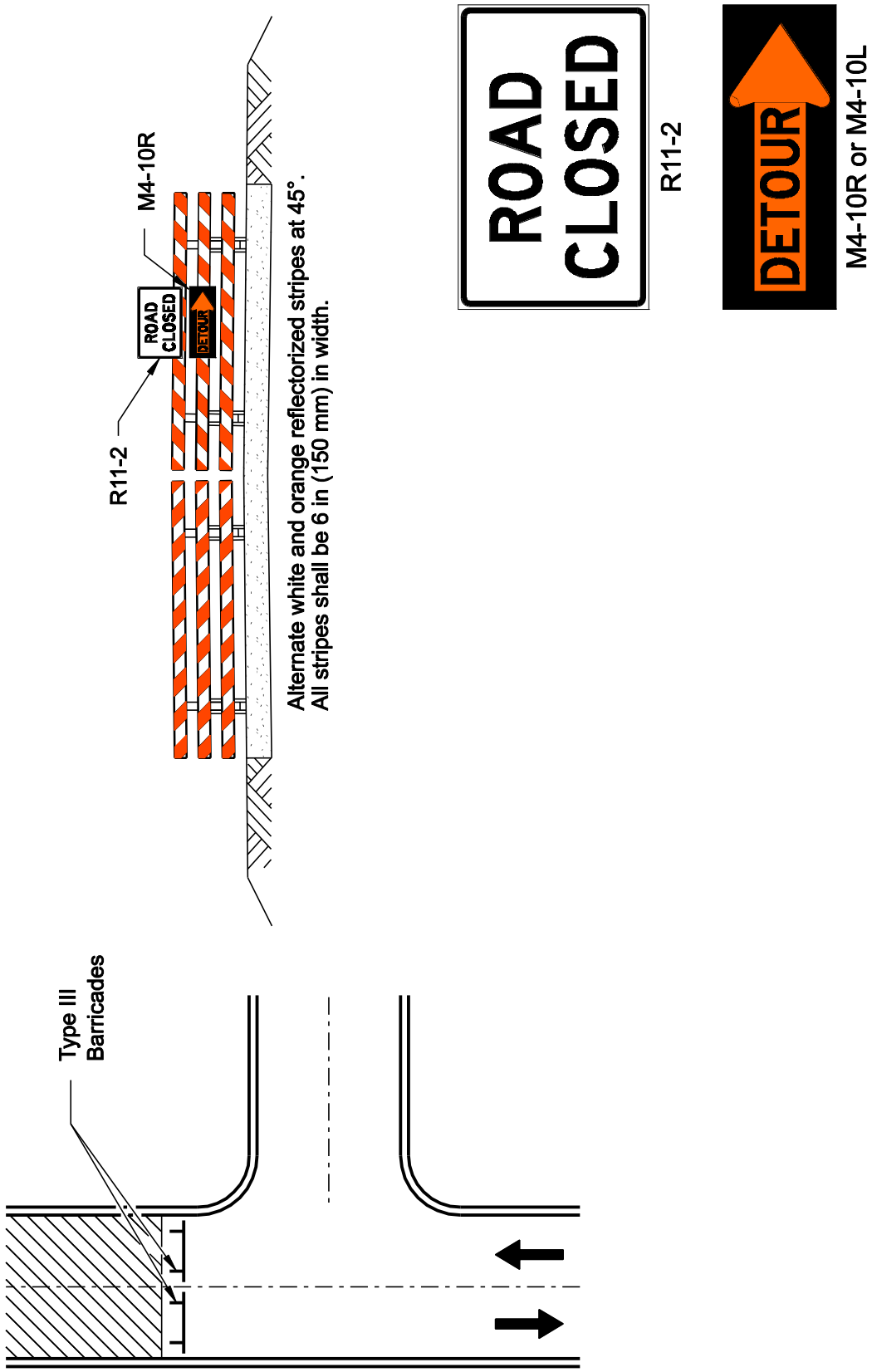

SPEED LIMIT 35
R2-1
GENERAL NOTES
1. The school speed zone should begin at a point either 200 ft (60 m) from the crosswalk or 100 ft (30 m) from the school property, whichever is encountered first.
2. A complete series of signs is shown for one direction only. Complete signing is required for both directions.
3. Longitudinal dimensions may be adjusted to fit field conditions.
4. The speed zone ahead sign is not required when the limit on the adjacent zone is 30 mph (50 kph) or less.
TYPICAL SIGNING FOR SCHOOL AREA
200 ft (60 m)
See Note 1
School
S1-1
W16-7p
300 ft (90 m) Urban
600 ft (180 m) Rural
400 ft (120 m) Urban
800 ft (240 m) Rural
SCHOOL
SPEED LIMIT 20
DO NOT PASS
ON SCHOOL DAYS WHEN CHILDREN ARE PRESENT
S4-I101
300 FT
W16-2a
or
AHEAD
W16-9p
S1-1
SCHOOL SPEED LIMIT 20
S4-5

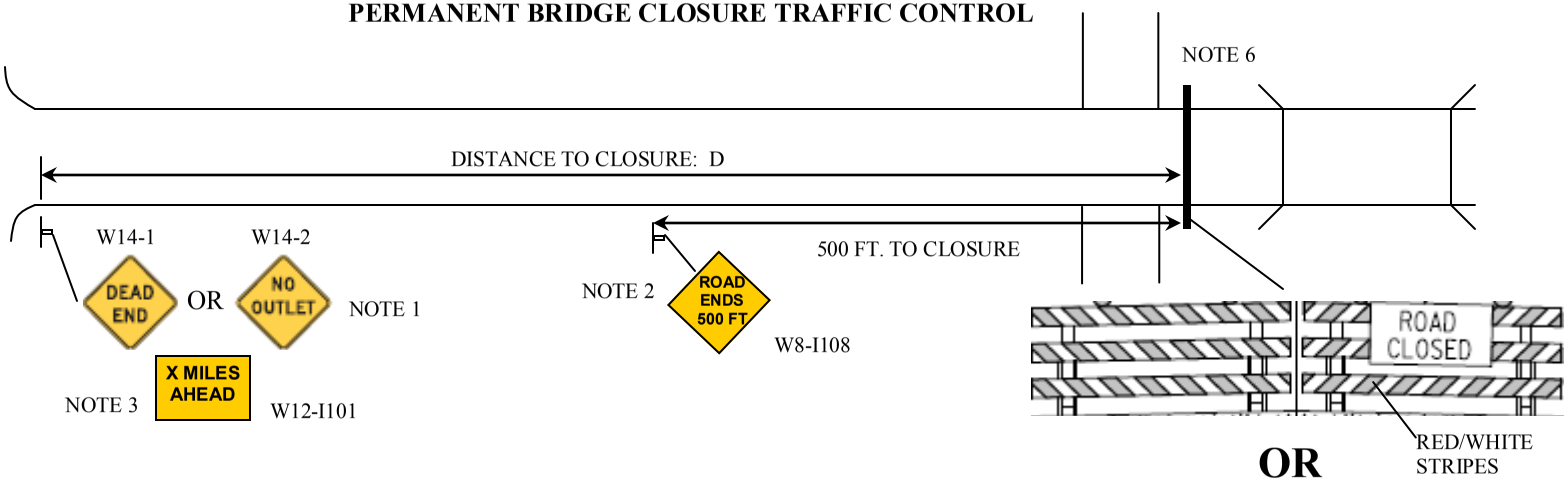
FIGURE IV-5



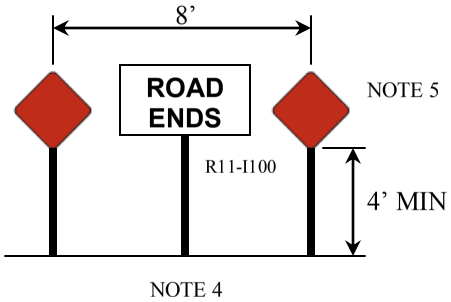
TEMPORARY ROAD CLOSURE
REGULATORY SIGN
ROAD CLOSED (R11-2)
GUIDE SIGN
DETOUR ARROW (M4-10R) (M4-10L)

FIGURE IV-6

PERMANENT BRIDGE CLOSURE TRAFFIC CONTROL



OR



NOTES:

1. SEE SECTION 2C.26 OF THE MUTCD. MULTI-LANE ROADS SHALL HAVE W14 SERIES SIGNS WITH A MINIMUM SIZE OF 36" X 36". SINGLE LANE ROADS MAY HAVE SIGNS OF 30" X 30".

2. USE WHERE 'D' EXCEEDS 1500 FT. OR WHERE SIGHT DISTANCE TO THE CLOSURE IS LESS THAN 500 FT.

3. WHERE THE POINT OF CLOSURE IS OVER 1 MILE FROM THE LAST CROSS ROAD, AN 'X MILES AHEAD' PLAQUE (W12-I101) MAY BE USED.

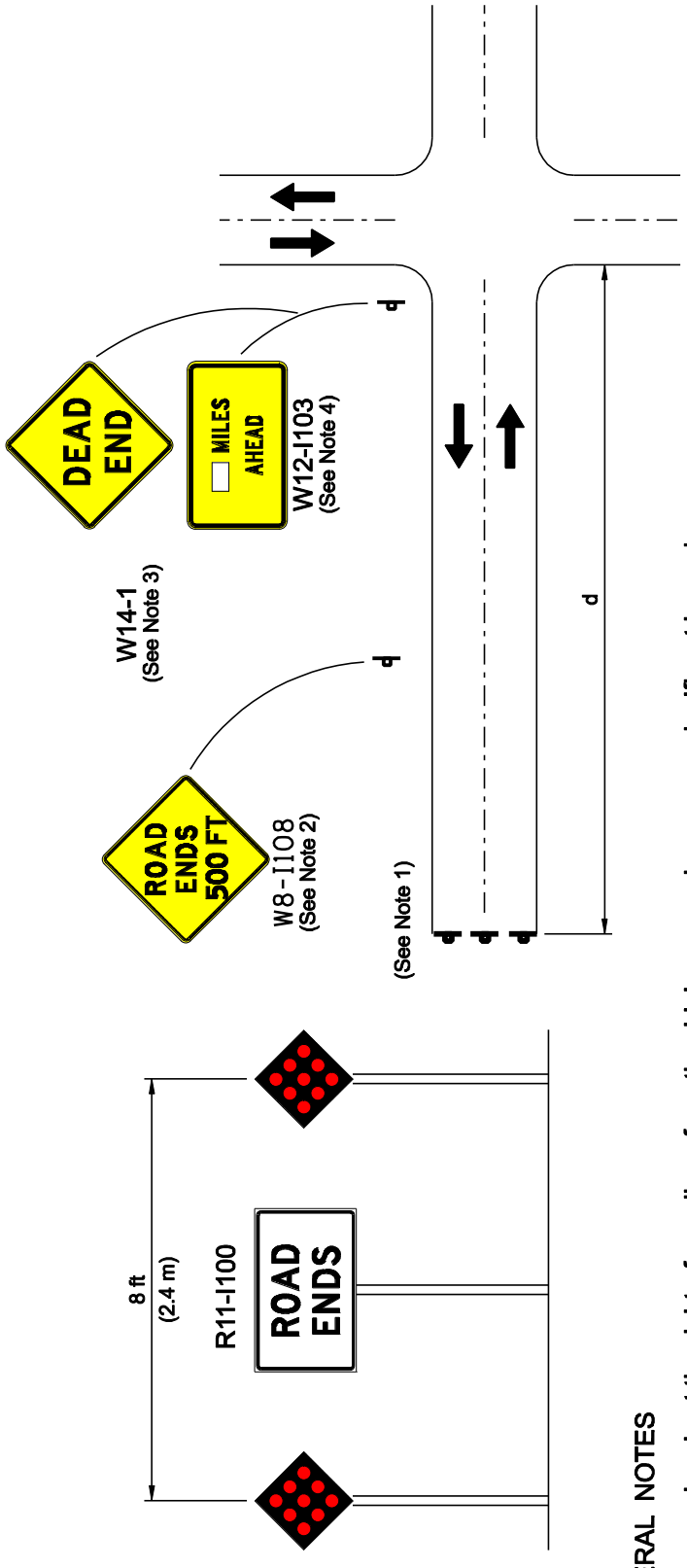
4. BARRICADES OR A ROAD ENDS SIGN WITH RED OBJECT MARKERS SHALL BE USED AT THE POINT OF CLOSURE. GUARDRAIL MAY BE USED IN CONJUNCTION WITH BARRICADES OR 'ROAD ENDS' SIGN. IF USED, BARRICADES SHALL BE RETRO-REFLECTORIZED RED/WHITE AND PERMANENTLY INSTALLED INTO THE PAVEMENT. ANY BARRIERS USED SHALL EXTEND BEYOND THE EDGE OF SHOULDER. IF PRACTICAL, OLD PAVEMENT SHOULD BE REMOVED BEYOND THE CLOSURE POINT OR COVERED WITH DIRT/ROCKS TO MINIMIZE THE ILLUSION OF THE ROAD CONTINUING. BARRICADES OR 'ROAD ENDS' SIGN SHOULD BE INSTALLED AT LEAST 100 FT. IN ADVANCE OF BROKEN PAVEMENT OR DIRT/ ROCKS.

5. OBJECT MARKERS USED IN CONJUNCTION WITH A 'ROAD ENDS' SIGN SHALL BE RED AND CONFORM WITH SECTION 2C.66 OF THE MUTCD.

6. IF A CROSS ROAD OR ENTRANCE IS LOCATED NEAR THE ROAD CLOSURE, THE CLOSURE DEVICES SHALL BE OUTSIDE THE CLEAR ZONE OF THE CROSSROAD OR ENTRANCE.

7. IF THE BRIDGE IS UNDER ACTIVE CONSTRUCTION, TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH PART 6 OF THE MUTCD.

Figure IV-7



LOW VOLUME ROAD CLOSURE

GENERAL NOTES

1. If the road ends at the right-of-way line of another highway or where some significant hazard exists beyond the closure point, the signs may be mounted on a Type III barricade "fence." Guardrail may be used in lieu of or in conjunction with the barricade "fence" where it is necessary to prevent deliberate entry onto access controlled right-of-way or an extreme hazard exists immediately beyond the closure point. Barricades, when used, shall be striped red and white and shall be fully reflectorized. If practical, old pavement should be removed to some distance beyond the closure point or covered with dirt to minimize the illusion of the road continuing and to provide a reasonably safe recovery area. The markers for the end of roadway shall conform with Section 3C-4 of the MUTCD.
2. Use where "d" exceeds 1500 ft (460 m) or where sight distance to the closure is less than 500 ft (150 m).
3. The DEAD END sign (W14-1) should be used in all cases except where the closure point is visible from the crossroad.
4. Where the point of closure is over 1 mi (1.6 km) from the last crossroad, a ____ Miles ahead plaque (W12-I103) may be used.

FIGURE IV-8

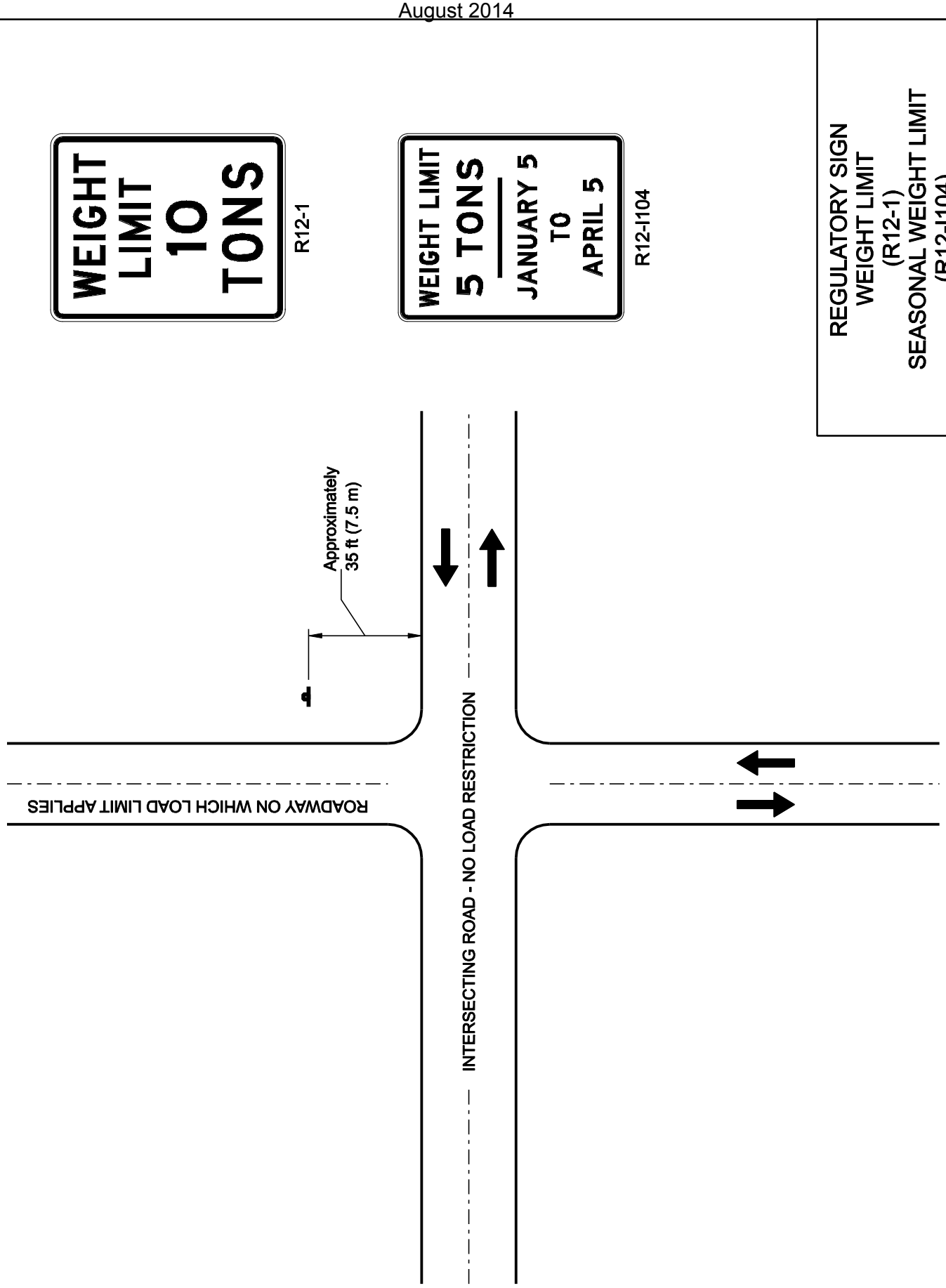

WEIGHT LIMIT 10 TONS
R12-1
WEIGHT LIMIT 5 TONS
JANUARY 5 TO APRIL 5
R12-I104
REGULATORY SIGN
WEIGHT LIMIT
(R12-1)
SEASONAL WEIGHT LIMIT
(R12-I104)
Approximately 35 ft (7.5 m)
INTERSECTING ROAD - NO LOAD RESTRICTION
ROADWAY ON WHICH LOAD LIMIT APPLIES

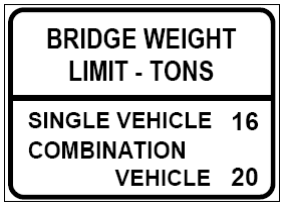
FIGURE IV-9

SIGNS FOR BRIDGE POSTINGS

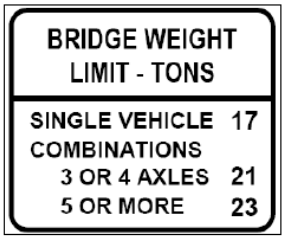
FOR SINGLE GROSS WEIGHT LIMIT

FOR SINGLE AXLE WEIGHT LIMIT

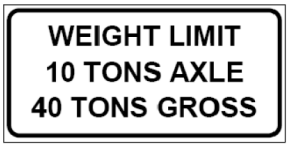
MAY BE PLACED BELOW WEIGHT LIMIT SIGN TO PROVIDE ADVANCE NOTICE



FOR TWO SEPARATE WEIGHT LIMITS



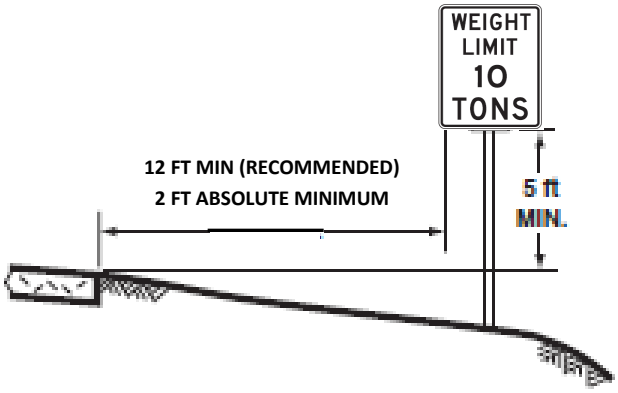
FOR THREE SEPARATE WEIGHT LIMITS



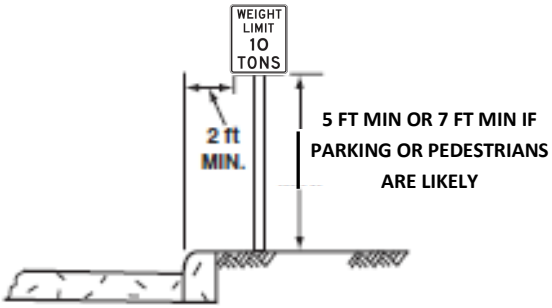
FOR LEGAL LOAD ONLY WEIGHT LIMITS

SIGN HEIGHT AND OFFSET REQUIREMENTS

RURAL LOCATIONS

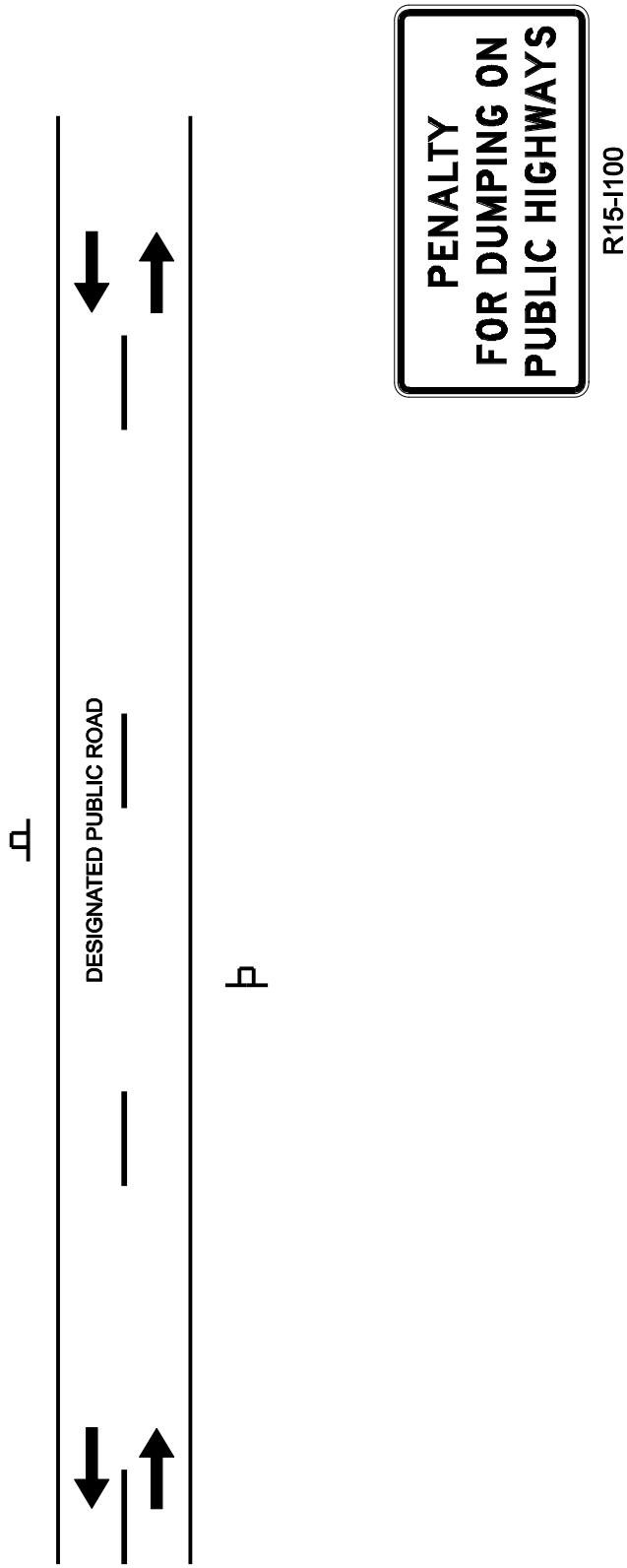


BUSINESS, COMMERCIAL, OR RESIDENTIAL LOCATIONS



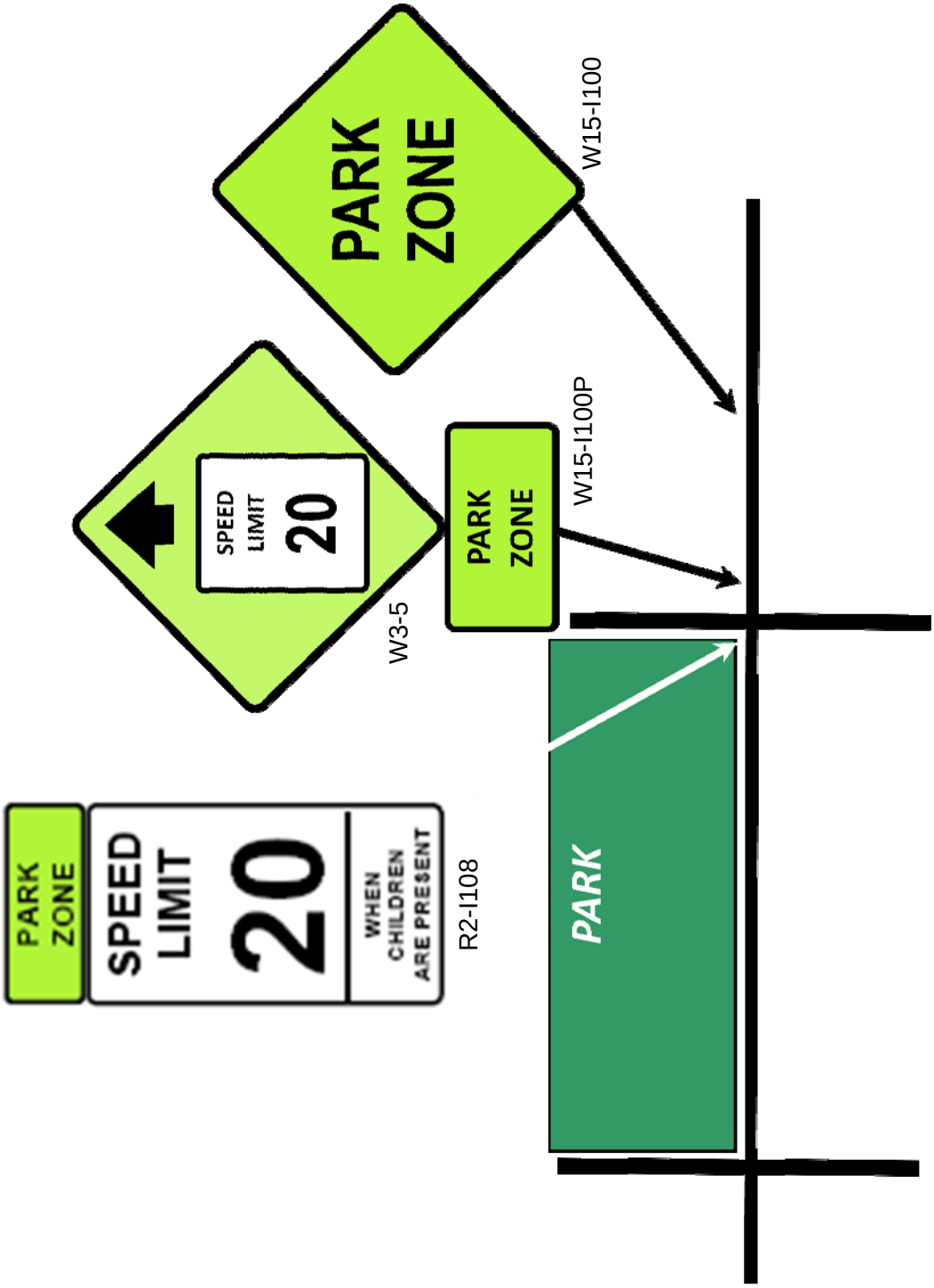
SIGN PLACEMENT REQUIREMENTS

- 'SINGLE WEIGHT LIMIT' SIGNS SHALL BE LOCATED IMMEDIATLEY IN ADVANCE OF THE BRIDGE.
- 'MULTIPLE WEIGHT LIMIT' SIGNS SHALL BE LOCATED WITHIN 500 FT IN ADVANCE OF THE BRIDGE.
- ADDITIONAL WEIGHT LIMIT SIGNS MAY BE INSTALLED IN ADVANCE OF THE RESTRICTION WITH AN 'X MILES AHEAD' PLAQUE TO PROVIDE ADVANCE NOTICE. ADVANCED SIGNS SHOULD BE INSTALLED NEAR JUNCTIONS WHERE A DRIVER COULD CHOOSE AN ALTERNATE ROUTE WITH A MINIMUM OF INCONVENIENCE.
- LEGAL LOAD ONLY SIGNS SHALL BE LOCATED IMMEDIATELY IN ADVANCE OF THE BRIDGE.



REGULATORY SIGN
PENALTY FOR DUMPING ON
PUBLIC HIGHWAYS
(R15-I100)

FIGURE IV-10



TYPICAL SIGNING FOR PARK ZONE

FIGURE IV-11

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CHAPTER 5: WARNING SIGNS

MUTCD Reference: 2C, 5C, 6F, 7B, 8B, and 9B

Warning signs are to be used to alert traffic of existing or potential hazardous conditions either on or adjacent to the road (Figure V-1). Warning signs require caution on the part of the motorists and may call for an adjustment of speed or other maneuvers in the interest of their own safety and that of pedestrians and other motorists.

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

- Changes in horizontal alignment
- Intersections
- Advance warning of control devices
- Converging traffic lanes
- Narrow roadways
- Changes in roadway design
- Steep Grades
- Roadway surface conditions
- In advance of Railroad crossings
- Entrances and crossings
- Reduction in speed limit
- No-passing zones
- Road closure
- Other miscellaneous situations

The determination of the warning sign or signs to be erected shall be on the basis of an engineering study.

Section 1: SIZE OF WARNING SIGNS

MUTCD Reference: Table 2C-1, Table 5A-1, Table 6F-1, Table 7B-1, Table 8B-1, and Table 9B-1

Section 2: PLACEMENT OF WARNING SIGNS

MUTCD Reference: 2C.05

Since warning signs are primarily for the benefit of the driver who is unacquainted with the road, it is very important that care be given to the placement of these signs. Warning signs should provide adequate time for the driver to perceive, identify, decide, and react. The time needed for detection, recognition, decision, and reaction is called the Perception-Response Time (PRT).

Table V-1 is provided as an aid for determining warning sign location. The distances shown in Table V-1 can be adjusted for roadway features, other signing, and to improve visibility that may be used under two conditions.

Posted Or 85th-Percentile Speed	Advance Placement Distance[1]								
	Condition A: Speed reduction and lane changing in heavy traffic[2]	Condition B: Deceleration to the listed advisory speed (mph) for the condition							
		0[3]	10[4]	20[4]	30[4]	40[4]	50[4]	60[4]	70[4]
20 mph	225 ft	100 ft[6]	N/A[5]	_	_	_	_	_	_
25 mph	325 ft	100 ft[6]	N/A[5]	N/A[5]	_	_	_	_	_
30 mph	460 ft	100 ft[6]	N/A[5]	N/A[5]	_	_	_	_	_
35 mph	565 ft	100 ft[6]	N/A[5]	N/A[5]	N/A[5]	_	_	_	_
40 mph	670 ft	125 ft	100 ft[6]	100 ft[6]	N/A[5]	_	_	_	_
45 mph	775 ft	175 ft	125 ft	100 ft[6]	100 ft[6]	N/A[5]	_	_	_
50 mph	885 ft	250 ft	200 ft	175 ft	125 ft	100 ft[6]	_	_	_
55 mph	990 ft	325 ft	275 ft	225 ft	200 ft	125 ft	N/A[5]	_	_
60 mph	1100 ft	400 ft	350 ft	325 ft	275 ft	200 ft	100 ft[6]	_	_
65 mph	1200 ft	475 ft	450 ft	400 ft	350 ft	275 ft	200 ft	100 ft[6]	_
70 mph	1250 ft	550 ft	525 ft	500 ft	450 ft	375 ft	275 ft	150 ft	_
75 mph	1350 ft	650 ft	625 ft	600 ft	550 ft	475 ft	375 ft	250 ft	100 ft[6]

Notes:

1. The distances are adjusted for a sign legibility distance of 180 ft for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 ft, which is appropriate for an alignment warning symbol sign. For Condition A and B, warning signs with less than 6-inches legend or more than four words, a minimum of 100 feet should be added to the advance placement distance to provide adequate legibility of the warning sign.
2. Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0 to 14.5 seconds for vehicle maneuvers (2005 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, avoidance Maneuver E) minus the legibility distance of 180 ft for the appropriate sign.
3. Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2005 AASHTO Policy, Stopping Sight Distances, Exhibit 3-1, providing a PRT of 2.5 seconds, a deceleration rate of 11.2 ft/second, minus the sign legibility distance of 180 ft.
4. Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance if determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10 ft/second, minus the sign legibility distance of 250 ft.
5. No suggested distances are provided for these speeds, as the placement location is dependent on the site conditions and other signing. An alignment warning sign may be placed anywhere from the point of curvature up to 100 ft in advance of the curve. However, the alignment warning sign should be installed in advance of the curve and at least 100 ft from any other sign.
6. The minimum advance placement distance is listed as 100 ft to provide adequate spacing between signs.

Guidelines for Advance Placement of Warning Signs
Table V-1

The use of warning signs should be kept to a minimum because the unnecessary use to warn of conditions which are apparent tends to breed disrespect for all signs.

All warning signs shall be diamond-shaped (square with one diagonal vertical) with a yellow background with black legend and border unless specifically designated otherwise. All warning signs shall be retroreflective. The minimum size for diamond-shape signs, except where otherwise specified, is 24 inches by 24 inches. The words CAUTION or SLOW or other similar messages are not to be used on warning signs since their shape and color implies that the motorists should exercise caution and may have to reduce speed.

The following sections describe warning signs commonly used on rural highways.

Section 3: HORIZONTAL ALIGNMENT SIGNS

MUTCD Reference: 2C.06, 2C.07, 5C.02
Size Conventional and Low Volume Road: 30 in X 30 in

The horizontal alignment Turn (W1-1) Curve, (W1-2R or 2L), Reverse Turn (W1-3), Reverse Curve (W1-4), or Winding Road (W1-5) signs 30” x 30” , shown in Figure V-2, may be used where engineering investigations of roadway, geometric and operating conditions show the recommended speed on the curve to be less than the speed limit established for that section of highway. If the recommended speed on the curve is 30 mph or less, a Turn sign (W1-1) or Reverse Turn sign (W1-3) would be used. If the recommended speed on the curve is greater than 30 mph, a Curve Sign (W1-2) or Reverse Curve sign (W1-4) would be used. An Advisory Speed plate may be erected below the Turn or Curve sign or the speed may be included on the sign for additional protection. These signs should be placed in accordance with Table V-1.

When used, the combination Horizontal Alignment/Advisory Speed sign shall supplement other advance warning signs and shall be installed at the beginning of the turn or curve.

Section 4: LARGE ARROW SIGNS (W1-6, W1-7)

MUTCD Reference: 2C.17, 2C.47 and 5C.02
Size Conventional Road: 48 in X 24 in
Size Low Volume Road: 36 in X 18 in

The One-Direction Large Arrow signs (W1-6) (Figure V-3), shall have either a large arrow pointing right or left. A One-Direction Large Arrow sign is intended to give notice of a sharp change of alignment in the direction of travel. If used, the sign shall be erected on the outside of a curve or turn in line with and at right angles to approaching traffic.

The One-Direction Large Arrow sign shall not be used where there is no alignment change in the direction of travel, such as at the beginnings and ends of the medians or at center piers.

Two-Direction Large Arrow signs (W1-7) shall be installed on the far side of a T-intersection in line with, and at approximately a right angle to traffic approaching from the stem of the T-intersection.

The Two-Direction Large Arrow sign shall not be used where there is no change in the direction of travel such as at the beginnings and ends of medians or at center piers. The Two-Direction Large Arrow sign directing traffic to the left and right shall not be used in the central island of a roundabout. The Two-Direction Large Arrow sign should be visible for a sufficient distance to provide the road user with adequate time to react to the intersection configuration.

Section 5: CHEVRON ALIGNMENT SIGN (W1-8)

MUTCD Reference: 2C.09 and 5C.02
Size Conventional Road: 18 in x 24 in
Size Low Volume Road: 12 in x 18 in

The Chevron Alignment sign, shown in Figure V-4, shall be a vertical rectangle and shall be a black chevron symbol on a yellow background. No border shall be used on the Chevron Alignment Sign. The Chevron Alignment sign is intended to provide additional emphasis and guidance to motorists as to sharp changes of horizontal alignment. Chevron Alignment signs, when used, are erected on the outside of a curve, sharp turn, or on the far side of an intersection, in line with and at right angles to approaching traffic. Spacing of the signs should be such that the motorists always have two in view, until the change in alignment eliminates the need for the signs. The signs should be visible for a sufficient distance to provide the road user with adequate time to react to the change in alignment. Chevron alignment signs shall be installed at a minimum height of 4 feet, measured vertically from bottom of the sign to elevation of the near edge of the traveled way.

Chevron Alignment signs shall not be placed on the far side of a T-intersection facing traffic on the stem approach to warn drivers that a through movement is not physically possible, as this is the function of a Two-Direction (or One-Direction) Large Arrow sign.

Chevron Alignment signs shall not be used to mark obstructions within or adjacent to the roadway, including the beginning of guardrails or barriers, as this is the function of an object marker.

Section 6: INTERSECTION WARNING (W2-1THROUGH W2-8)

MUTCD Reference: 2C.46 and 5C.03
Size Conventional and Low Volume Road: 30 in X 30 in

The Cross Road (W2-1) sign, shown in Figure V-5, is intended for use on a through roadway to indicate the presence of an obscured crossroad intersection. An advance street name plaque may be installed above or below a Cross Road sign. These signs should not be used on approaches controlled by STOP signs, YIELD signs, or signals. The relative importance of the intersecting roads may be shown by different widths of lines in the symbol. These signs should be placed in accordance with Table V-1. If an Intersection Warning sign is used where the side roads are not opposite each other, the Offset Side Roads (W2-7) sign should be used instead of the Cross Road sign.

The Side Road (W2-2 or W2-3) sign (Figure V-6), showing a side-road symbol, either left or right, and at either a 45 or 90 degree angle is intended for use in advance of a side-road intersection to the same warrants as those set forth for the Cross Road sign. If an Intersection Warning sign is used where two closely spaced side roads are on the same side of the highway, the Double Side Road (W2-8) sign should be used instead of the Side Road sign.

The T Symbol (W2-4) sign, shown in Figure V-7, is intended to warn traffic approaching a T-intersection on the road that forms the stem of the T. The sign should not generally be used at a T-intersection that is channelized by traffic islands. It may be desirable to place a double-headed Large Arrow sign (W1-7) at the head of the T directly facing approaching traffic.

The Y Symbol (W2-5) sign, shown in Figure V-8, is intended to warn traffic approaching a Y-intersection that is channelized by traffic islands. It may be desirable to erect a double-headed Large Arrow sign at the fork of the Y directly in line with approaching traffic.

The Circular Intersection (W2-6) sign is intended to warn traffic approaching a circular intersection. If an approach to a roundabout has a statutory or posted speed limit of 40 mph or higher, the Circular Intersection sign should be installed in advance of the circular intersection.

Section 7: STOP AHEAD (W3-1) AND YIELD AHEAD (W3-2) SIGNS

MUTCD Reference: 2C.36
Size Conventional Road: 36 in X 36 in
Size Low Volume Road: 30 in X 30 in

The STOP AHEAD and YIELD AHEAD signs, shown in Figure IV-2, shall be installed on approaches to a STOP or YIELD sign that is not visible for a sufficient distance to permit the road user to respond to the device. The word messages STOP AHEAD or YIELD AHEAD may be used as an alternate to the symbol signs.

STOP AHEAD signs on local roads that intersect with a State highway shall be maintained by the LPALPAunless an intergovernmental agreement is executed with the appropriate district. While the agreement allows the Department to maintain the STOP AHEAD signs, the LPA shall perform all inspections and notify the Department when maintenance is required. The Department will not patrol the LPA's roads and streets for the purpose of inspecting the STOP AHEAD signs.

Section 8: ROAD NARROWS SIGN (W5-1)

MUTCD Reference: 2C.19
Size Conventional Road: 36 in X 36 in

A ROAD NARROWS sign, shown in Figure V-9, should be used in advance of a transition on a two lane road where the pavement width is reduced abruptly to a width such that vehicles traveling in opposite directions cannot simultaneously travel through the narrow portion of the roadway without reducing speed. Additional emphasis may be provided by the use of object markers and delineators. The Advisory Speed (W13-1p) plaque may be used to indicate the recommended speed.

Section 9: NARROW BRIDGE SIGN (W5-2)

MUTCD Reference: 2C.20 and 5C.05
Size Conventional Road: 36 in X 36 in
Size Low Volume Road: 30 in X 30 in

The NARROW BRIDGE sign, shown in Figure V-10, should be used in advance of a bridge or culvert having a clear two-way roadway width of 16 to 18 feet or any bridge or culvert having a roadway clearance less that the width of the approach travel lanes. Additional protection should be provided by the use of object markers, delineators, and/or pavement markings. A NARROW BRIDGE sign may be used in advance of a bridge or culvert on which the approach shoulders are narrowed or eliminated

Section 10: ONE LANE BRIDGE SIGN (W5-3)

MUTCD Reference: 2C.21 and 5C.06
Size Conventional Road: 36 in X 36 in
Size Low Volume Road: 30 in X 30 in

A ONE LANE BRIDGE sign, shown in Figure V-11, should be used on two-way roadways in advance of bridges or culverts:

- having a clear roadway width less than 16 feet ,
- having a clear roadway width less than 18 feet where commercial vehicles constitute a high proportion of traffic
- having a clear roadway width of 18 feet or less where the sight distance is limited on the approach to the structure.

Additional emphasis should be provided by the use of object markers, delineators, and/or pavement markings.

Section 11: HIGHWAY-RAIL GRADE CROSSING ADVANCE WARNING SIGN (W10-1)

MUTCD Reference: 8B.06 and 5F.03
Size Conventional Road: 36 in diameter
Size Low Volume Road: 30 in diameter

The Highway-Rail Grade Advance Warning signs, shown in Figure V-12, shall be used in advance of every railroad crossing, except in the following circumstances:

A Highway-Rail Grade Crossing Advance Warning (W10-1) sign shall be used on each highway in advance of every highway-rail grade crossing except in the following circumstances:

1. On an approach to a highway-rail grade crossing from a T-intersection with a parallel highway, if the distance from the edge of the track to the edge of the parallel roadway is less than 100 ft (30 m), and W10-3 signs are used on both approaches of the parallel highway; or
2. On low-volume, low speed highways crossing minor spurs or other tracks that are infrequently used and are flagged by train crews; or
3. In business districts where active highway-rail grade crossing traffic control devices are in use; or
4. Where physical conditions do not permit even a partially effective display of the sign.

The MUTCD also requires the installation of signs, for advance warning of railroad crossings, on highways that are parallel to railroads (W10-2, W10-3, or W10-4) and less than 100 feet from the edge of the tracks to the edge of the parallel roadway. The purpose of these signs is to warn a motorist making a turn that they will encounter a highway-rail grade crossing soon after making a turn, and a W10-1 sign for the approach of the tracks shall not be required to be between the tracks and parallel highway.

Section 12: SUPPLEMENTAL RAILROAD CROSSING SIGNING

MUTCD Reference: 8B.24
Size Conventional Road: 30 in X 36 in

A XX FEET BETWEEN TRACKS AND HIGHWAY storage distance (W10-I100) sign shall be installed on any approach to a railroad grade crossing where the distance between the rail closest to the subsequent STOP sign controlled highway intersection and the intersection stop line is less than 81 feet. See the Illinois Supplement to the MUTCD for details.

A DO NOT STOP ON TRACKS sign (R8-8) shall be installed in advance of each crossing where a W10-I100 sign is used. The R8-8 sign may be placed under the W10-I100 sign.

Section 13: VEHICULAR TRAFFIC WARNING SIGNS (W8-6, W11-1, W11-5, W11-5A, W11-8, W11-10, W11-11, W11-12P, W11-14, W11-15, AND W11-15A)

MUTCD Reference: 2C.49 and 5C.09
Size Conventional Road: 30 in X 30 in (36 in x 36 in for W8-6).
Size Low Volume Road: 30 in X 30 in

VEHICULAR TRAFFIC WARNING (W8-6, W11-1, W11-5, W11-5a, W11-8, W11-10, W11-11, W11-12P, W11-14, W11-15, and W11-15a) signs may be used to alert road users to locations where unexpected entries into the roadway by trucks, bicyclists, farm vehicles, emergency vehicles, golf carts, horse-drawn vehicles, or other vehicles might occur. VEHICULAR TRAFFIC WARNING signs should be used only at locations where the road user's sight distance is restricted, or the condition, activity, or entering traffic would be unexpected.

Section 14: NON-VEHICULAR WARNING SIGNS (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, AND W11-16 THROUGH W11-22)

MUTCD Reference: 2C.50 and 5C.09
Size Conventional Road: 30 in X 30 in
Size Low Volume Road: 30 in X 30 in

NON-VEHICULAR Warning (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, and W11-16 through W11-22) signs may be used to alert road users in advance of locations where unexpected entries into the roadway might occur or where shared use of the roadway by pedestrians, animals, or equestrians might occur. If a post-mounted W11-2, W11-6, W11-7, or W11-9 sign is placed at the location of the crossing point where pedestrians, snowmobilers, or equestrians might be crossing the roadway, a diagonal downward pointing arrow (W16-7p) plaque shall be mounted below the sign. If the W11-2, W11-6, W11-7, or W11-9 sign is mounted overhead, the W16-7P plaque shall not be used.

Section 15: NON-HIGHWAY VEHICLE (W11-11, W11-I100, AND W11-I102) AND LOW SPEED VEHICLE (W11-I101) SIGNS

MUTCD Reference: 2B.I75
Size Conventional Road: 30 in X 30 in
Size Low Volume Road: 30 in X 30 in

Pursuant and subject to 625 ILCS 5/11-1426.1, LPAs may authorize, by ordinance or resolution, the operation of non-highway vehicles to operate on highways and/or bridges under their jurisdiction if the LPA determines that the public safety will not be jeopardized. LPAs may restrict the types of non-highway vehicles that are authorized to be used in its highways. Before permitting the operation of non-highway vehicles on its highways, LPAs must consider the volume, speed, and character of traffic on the highway and determine whether non-highway vehicles may safely travel on or cross the highway.

Non-Highway Vehicles include:

- All-Terrain Vehicle as defined by 625 ILCS 5/1-101.8
- Golf Carts as defined by 625 ILCS 5/1-123.9
- Off-Highway Motorcycle as defined by 625 ILCS 5/1-153.1
- Recreational Off-Highway Vehicle as defined by 625 ILCS 5/1-168.8

Upon determining that non-highway vehicles may safely travel on or cross the highway and the adoption of an ordinance or resolution by LPAs, the GOLF CART CROSSING (W11-11) sign, the ALL-TERRAIN VEHICLES (W11-I100) sign, or the OFF-HIGHWAY VEHICLES (W11-I102) sign may be installed where dictated by engineering judgment.

Pursuant and subject to 625 ILCS 5/11-1426.2, low-speed vehicles as defined by 625 ILCS 5/1-140.7 may be driven or operated upon any highway in Illinois where the posted speed limit is 30 miles per hour or less. LPAs may allow, by ordinance or resolution, the operation of low-speed vehicles on any and all streets under its jurisdiction having a speed limit of more than 30 miles per hour but not greater than 35 miles per hour. Before permitting the operation of low-speed vehicles on highways having a speed limit of more than 30 miles per hour but not greater than 35 miles per hour, LPAs must consider the volume, speed, and character of traffic on the highway and determine whether non-highway vehicles may safely travel on or cross the highway. The LOW-SPEED VEHICLE (W11-I101) sign may be installed where dictated by engineering judgment.

LPAs may prohibit, by ordinance or resolution, the operation of low-speed vehicles on any and all streets under its jurisdiction. If such a determination is made, USE PROHIBITED BY (R5-I107) sign shall be posted at appropriate locations.

Section 16: ADVISORY SPEED PLAQUES (W13-1P)

MUTCD Reference: 2C.08 and 5C.10
Size Conventional Road: 18 in X 18 in
Size Low Volume Road: 18 in X 18 in

The Advisory Speed (W13-1P) plaque may be used to supplement any warning sign to indicate the advisory speed for a condition. The Advisory Speed plaque shall be used where an engineering study indicates a need to advise users of the advisory speed for a condition. The advisory speed may be the 85th percentile speed, the speed corresponding to the 16° ball bank indicator, or a speed determined by an engineering study.

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CHAPTER V RURAL WARNING SIGN FIGURES

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FIGURE V-1 TYPICAL APPLICATIONS

FIGURE V-2 CURVE

FIGURE V-3 LARGE ARROW

FIGURE V-4 CHEVRON ALIGNMENT

FIGURE V-5 CROSS ROAD SIGN

FIGURE V-6 SIDE ROAD SIGN

FIGURE V-7 T SYMBOL

FIGURE V-8 Y SYMBOL

FIGURE V-9 ROAD NARROWS

FIGURE V-10 NARROW BRIDGE

FIGURE V-11 ONE LANE BRIDGE

FIGURE V-12 RAILROAD ADVANCE WARNING

FIGURE V-13 TYPICAL SUPPLEMENTAL SIGNING TREATMENT FOR RAILROAD CROSSINGS WITHOUT INTERSECTION TRAFFIC SIGNALS

FIGURE V-14 TYPICAL SUPPLEMENTAL PAVEMENT MARKING TREATMENT FOR RAILROAD CROSSINGS WHERE INTERSECTION TRAFFIC SIGNALS ARE INTERCONNECTED WITH ADJACENT RAILROAD WARNING SIGNS

CHAPTER 6: CHAPTER 6 - MISCELLANEOUS

Section 1: GUIDE SIGNS – CONVENTIONAL ROADS

MUTCD Reference: 2D

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

Low-volume roads generally do not require guide signs to the extent that they are needed on higher classes of roads. Because guide signs are typically only beneficial as a navigational aid for road users who are unfamiliar with a low-volume road, guide signs might not be needed on low-volume roads that serve only local traffic. If used, destination names should be as specific and descriptive as possible.

Section 2: TOURIST ORIENTED DESTINATION SIGNING (TODS)

MUTCD Reference: 2K

Pursuant and subject to 625 ILCS 5/11-304, LPAs may install signs alerting motorists of tourist oriented businesses that are on roads in rural areas under LPA jurisdiction. The decision to place or allow Tourist Oriented Directional Signing (TODS) on the local system rests with the LPA. LPAs also have the authority to sell or lease space on these signs to the owners or operators of the businesses. TODS on highways under LPA jurisdiction must be in conformance with ILMUTCD.

For state maintained non-freeways that are outside the urban areas, TODS is covered by Title 92 of the Illinois Administrative Code Part 541.The Tourist Oriented Destination Signing (TODS) program provides for the display of tourist oriented directional sign along various State-maintained non-freeways in order to provide motorists with travel related directional information to facilities of interest to tourism. The program applies to areas within the State of Illinois which are located in rural areas with rural being defined as “an area outside of an incorporated municipality with a population of 500 or less or any area with a population density of 500 or less inhabitants per square mile.”

For a business to qualify, it shall not be located on or adjacent to a marked State highway; however, it must be within 5 road miles of a marked State highway and must be located in a rural area as previously defined.

A business on a road intersecting with a marked State highway will be signed on the State marked highway if it is visible to the motorist from the intersecting road, or if a sign is on the business site advising motorists of the appropriate entrance to the establishment.

A business that is not on the road intersecting with a marked State highway will be signed on the marked State highway if trailblazing or other signs are in place on the intersecting road and on such other roads as may be necessary to clearly advise motorists where to turn to reach the business. Where the intersecting road or other roads leading from the intersection with the marked State highway are unmarked State highways, the department will place such trailblazer signs on the State highways for the fee established with the program.

Where roads are under LPA jurisdiction, signing will not be provided on State highways until legible trailblazer or other signs are placed by, or by permission of, such LPAs with directional information advising motorists where to turn. The business shall have the responsibility for arranging for the placement of all signs on roads under LPA jurisdiction. The decision to place or allow signs on the local system will rest with the LPA. The LPAs, under a statutory provision, shall also have the authority to sell or lease space on these signs to the owners or operators of the businesses.

TODS on highways under LPA jurisdiction may be of any legible design and color provided that the name of the business is consistent with that requested for the signing on the State highways and that the signs contain adequate directional information.

Examples of TODS and trailblazer sign placement are shown in Figures VI-1 through VI-3. Further information on the TODS program is available at www.dot.il.gov/tods/tods.html.

Section 3: OBJECT MARKERS

The use of object markers is intended to identify specific objects (e.g., bridge handrails, abutments, culvert headwalls) wherever the object is located either within or adjacent to the roadway. Obstructions within the roadway shall be marked with Type 1 or Type 3 object marker. In addition to markers on the face of the obstruction, warning of approach to the obstruction should be given by appropriate pavement marking. Objects not actually in the roadway are sometimes so close to the edge of the road that they need a marker. If used, the inside edge of the marker shall be in line with the inner edge of the obstruction.

The Type 3 Object Marker (Figure V-10) will be the one most frequently used on rural township roads. 1+ consists of a vertical rectangle 1 foot by 3 feet in size with alternating black and retroreflective yellow stripes sloping downward at angle of 45 degrees toward the side of the obstruction on which the traffic is to pass. The minimum width of the yellow and black stripe shall be 3 inches .

When used for marking objects in the roadway that are 8 feet or less from the shoulder, the mounting height to the bottom of the object marker should normally be 4 feet above the surface of the nearest traffic lane. When used to mark objects more than 8 feet from the shoulder, the mounting height to the bottom of the object marker should be at least 4 feet above the ground.

When object markers or markings are applied to a hazardous object, which by its nature requires a lower or higher mounting, the vertical mounting height may vary according to need.

Section 4: RURAL REFERENCE SYSTEM AND STREET NAME SIGNS (D3-1)

MUTCD Reference: 2D.43
Size Conventional Road: Varies X 12 in
Size Minimum: Varies X 8 in

The Rural Reference System is a voluntary system that provides for the development of uniform reference points on rural county and township roads. Use of the Rural Reference System is recommended to provide orientation for non-local travelers and can also be used as a rural address program. With this system, traffic crashes can be located with an accuracy of 0.1 of a mile. Signs are usually placed at each intersection and provide the location within the county. The reference system coordinates may be combined with the road name on the signs. The Street Name (D3-1) sign shall be used.

Lettering should be composed of initial upper-case at least 6 inches in height and lower-case letters at least 4.5 inches in height. For local roads with speed limits less than 25 mph or less, the lettering may be composed of initial upper-case at least 4 inches in height and lower-case letters at least 3 inches in height.

The only acceptable alternative background colors for Street Name (D3-1) sign shall be blue, brown, or white. Regardless of whether green, blue, or brown is used as the background color for Street Name (D3-1) sign, the legend (and border, if used) shall be white. For Street Name (D3-1) sign that uses a white background, the legend (and border, if used) shall be black.

Street Name signs may be placed above a regulatory or STOP or YIELD sign with no required vertical separation

Section 5: ADOPT-A-HIGHWAY SIGN (I1-I107A AND I1-I107B)

The Adopt-a-Highway (I1-I107a and I1-I107b) signs have been developed for use by LPAs for their respective Adopt-a-Highway program. It is not necessary for LPAs to seek IDOT approval for the logo or message to be used on this design.

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CHAPTER VI RURAL MISCELLANEOUS

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FIGURE VI-1 TYPICAL TOURIST ORIENTED DIRECTIONAL SIGNS

FIGURE VI-2 TYPICAL SIGNING FOR TOURIST ORIENTED SERVICES

FIGURE VI-3 EXAMPLE OF TRAILBLAZER SIGN REPLACEMENT

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