



Traffic ~~Guidelines~~ ~~Manual~~Engineering Operations & Safety manual

ORIGINATOR State Traffic Engineer		2-1-42
CHAPTER 2	Signing	
SECTION 1	General	
SUBJECT 42	State Entrance Signing	

A. Purpose

In the past, several different signs have been installed along Department-maintained roadways at state entrances. In some cases, several signs have been installed on the same support. At some state entrances, blue signs with the state outline (I2-1-B) are installed. Based on an interpretation received from FHWA in 2013, the shape of these signs is not in conformance with the 2009 MUTCD. This policy will define the appropriate sequence of signs when entering the state along a Department-maintained roadway.

B. Definitions

Freeways are defined as divided arterial highway facilities that have full controlled access, by means of grade separation at interchanges only.

Expressways are defined as divided arterial highway facilities that have partial control of access and generally with grade separations at major intersections.

Conventional Highways are defined as either divided or undivided roadway facilities that have no control of access with grade separations at intersections. These highways can be two lane or multilane facilities.

C. Policy

Freeways and Expressways

The standard order of sign installations along a freeway or expressway, beginning at the state line, is shown below. 200' minimum spacing *should* be maintained between each sign installation. Note that this order *may* need to be adjusted based on field conditions.

1. I2-1 (Wisconsin) with I2-2 (County name) directly below.
2. J4-series (Reassurance Assembly)
3. R2-1 (Speed Limit)
4. R5-53-A (Buckle Up – It's the Law)
5. R5-60 (Move Over or Slow Down)
6. D12-5 (Travel Info Call 511)

In addition to this on-right-of-way signing, for freeway and expressway entrances to the state, a large timber “Wisconsin Welcomes You” sign is typically installed in an off-right-of-way location that is visible to traffic.

Conventional Highways

The standard order of sign installations along a conventional highway, beginning at the state line, is shown below. 200' minimum spacing *should* be maintained between each sign installation in rural areas. 100' minimum spacing *should* be maintained between each sign in urban areas. Note that this order *may* need to be adjusted based on field conditions.

1. I2-1 (Wisconsin) with I2-2 (County name) directly below.
2. I2-3 (Community population sign) – only if entering municipal limits
3. J4-series (Reassurance Assembly)
4. R2-1 (Speed Limit)
5. D2-series – not used if entering municipal limits

In addition to this on-right-of-way signing, for conventional highway entrances to the state that are part of the National Highway System, a large timber “Wisconsin Welcomes You” sign is typically installed in an off-right-of-way location that is visible to traffic.

D. Implementation

There is no formal phase-in period for installation of this signing. Existing non-conforming state entrance signs will be allowed to remain in place until the end of their useful life. Useful life ends when the sign message no longer meets legibility or condition standards. Existing non-conforming state entrance signs *may* be replaced prior to the end of their useful life when opportunities arise such as knockdown or damage, when other work is occurring nearby, or when projects make replacement practical.



GENERAL

The MUTCD classifies the chevron as an alignment sign, but it is basically a delineator with a directional connotation, which is the aspect of the sign that relegates its use to horizontal curves. It is not to be used at roadway width transitions, lane drops, or approaches to narrow bridges. It is also not to be used singly, because that will not adequately develop the directional message. Another inappropriate use is in a cluster at the end of a T-intersection.

Chevrons (W1-8) signs *may* be used in combination with the large night arrow (W1-6) sign or without the large night arrow sign. [Table 2C-5](#) of the MUTCD provides guidance as to when chevron signs are used.

The MUTCD, [Table 2C-6](#) contains spacing criteria for installations of chevrons, which has been included as part of this policy.

GUIDANCE

The following guidelines apply to these signs:

1. It is desirable to position one chevron directly ahead of an approaching vehicle while the vehicle is on the approach tangent, and begin spacing in both directions from that point.
2. Extend to the point of curvature, and to the point of tangency; do not alter the spacing to meet these points, however.
3. A minimum of three signs **shall** be used, even if they extend beyond the point of curvature. Also, per the MUTCD, the spacing of chevron signs *should* be such that the road user has at least two in view, until the change in alignment eliminates the need for the signs.
4. Chevron signs **shall not** be placed on the far side of a T-intersection to warn drivers that a through movement is not possible.
5. Chevron signs **shall not** be used to mark obstructions within the roadway.
6. Follow the spacing table below, making adjustments for conflicts with driveways, signs, etc. The chevron spacing shown below are maximum distances between chevrons. Chevrons may be spaced closer to address curves with tighter radius measurements.

Chevron signs **shall** be mounted at a 4-foot minimum height (measured from the bottom of sign to the elevation of the near edge of traveled way). They **shall** be aimed toward traffic rather than located perpendicular to the curve.

The chevron sign *may* be used only where an emerging or demonstrated accident problem exists. On highways to be reconstructed it is unlikely that accidents will be expected to occur on the re-alignment. Therefore chevron signs *should not* normally be specified on new construction, unless required by [Table 2C-5](#) of the MUTCD.

CHEVRON ALIGNMENT SIGN SPACING

Posted Advisory Speed (mph)	Curve Radius (feet)	Maximum Spacing (feet)
15 mph or less	less than 200	40
20	200-400	80
25	200-400	80
30	200-400	80
35	401-700	120
40	401-700	120
45	401-700	120
50	701-1,250	160
55	701-1,250	160
60	greater than 1,250	160
65	greater than 1,250	200

7. Existing signs not installed at this spacing *should* be adjusted when opportunity permits, due to improvement projects, knockdowns or if problems are present.



Traffic Guidelines Manual

ORIGINATOR State Traffic Engineer	2-3-25
CHAPTER 2	Signing
SECTION 3	Warning
SUBJECT 25	Single Diagonal Arrow signs

A. General

Section 2C-25 of the [2009 MUTCD](#) allows the use of the Double Diagonal Arrow sign (W12-1D) to advise drivers that traffic is permitted to pass on either side of an obstruction. Section 2C-25 of the [2009 Wisconsin MUTCD](#) further allows the use of a sign with a single diagonal arrow ([W12-1L/R](#)) to advise drivers that traffic is only permitted on one side of an obstruction. In practice, WisDOT has also utilized W12-1L/R signs to warn drivers of lane reduction situations that have experienced an above-average crash rate. This policy will establish guidelines for the use of W12-1L/R signs.

B. Guidance

The following guidelines apply to these signs:

LANE REDUCTIONS

1. Single Diagonal Arrow signs *should* be used as a bank of signs, not as a single sign installation. A minimum of 3 signs *should* be used.
2. Signs *should* be installed along the entire length of the lane reduction taper, as space is available and geometrics allow. The signs *should not* extend beyond the beginning or end of the taper.
3. Single Diagonal Arrow signs are typically used on conventional roadways. On freeways and expressways, Type 5 pavement marking arrows (“pushover arrows”) are typically used for this purpose.
4. Follow the spacing table below, making adjustments for conflicts with driveways, signs, etc. The spacings shown below are maximum distances between signs.

Single Diagonal Arrow signs *should* be mounted at a 4-foot minimum height (measured from the bottom of sign to the elevation of the near edge of traveled way). They **shall** be located perpendicular to the through traffic lanes.

The Single Diagonal Arrow sign *may* be used only where an emerging or demonstrated accident problem exists. On highways to be reconstructed it is unlikely that accidents will be expected to occur on the re-alignment. Therefore Single Diagonal Arrow signs *should not* normally be specified on new construction, unless an existing geometric situation is not being rectified by the project.

SINGLE DIAGONAL ARROW SIGN SPACING

Posted Speed (mph)	Maximum Spacing (feet)
15 mph or less	40
20	80
25	80
30	80
35	120
40	120
45	120
50	160
55	160
60	160
65	200
70	200

- Existing signs not installed at this spacing *should* be adjusted when opportunity permits, due to improvement projects, knockdowns or if problems are present.

MEDIAN ISLANDS

- R4-7 "KEEP RIGHT" signs *should* be used to mark the beginning of medians. However, at some smaller median island locations, KEEP RIGHT signs would block the driver's view of other regulatory or warning signs or traffic signal faces. In these situations, Single Diagonal Arrow signs may be used to mark the beginning of medians.
- When used to mark the upstream end of a median island, Single Diagonal Arrow signs should be mounted at a 2-foot minimum height (measured from the bottom of sign to the elevation of the near edge of traveled way).



Traffic Guidelines Manual TEOPS

ORIGINATOR State Traffic Engineer		2-4-51
CHAPTER 2	Signing	
SECTION 4	Guide Signs - Conventional	
SUBJECT 51	Rustic Road Signing	

A. General

The Wisconsin Administrative Code Trans-RR 1 contains all of the rules for the application procedures and sign installation/maintenance criteria for Rustic Road Signing. The Wisconsin Department of Transportation has organized a Rustic Roads Board that maintains all of the rules in Wisconsin Administrative Code Trans-RR1. In addition to these rules, there is a need to also provide clear guidance on the minimum signing that is required to conform to the rules of the Rustic Roads Board. The goal of this guidance is to provide for a statewide consistent method of signing and clearly define what the signing the Department is responsible for and what signing the Local maintaining authority is responsible for.

B. Policy

Below are the guidelines for the installation and maintenance of Rustic Road Signing.

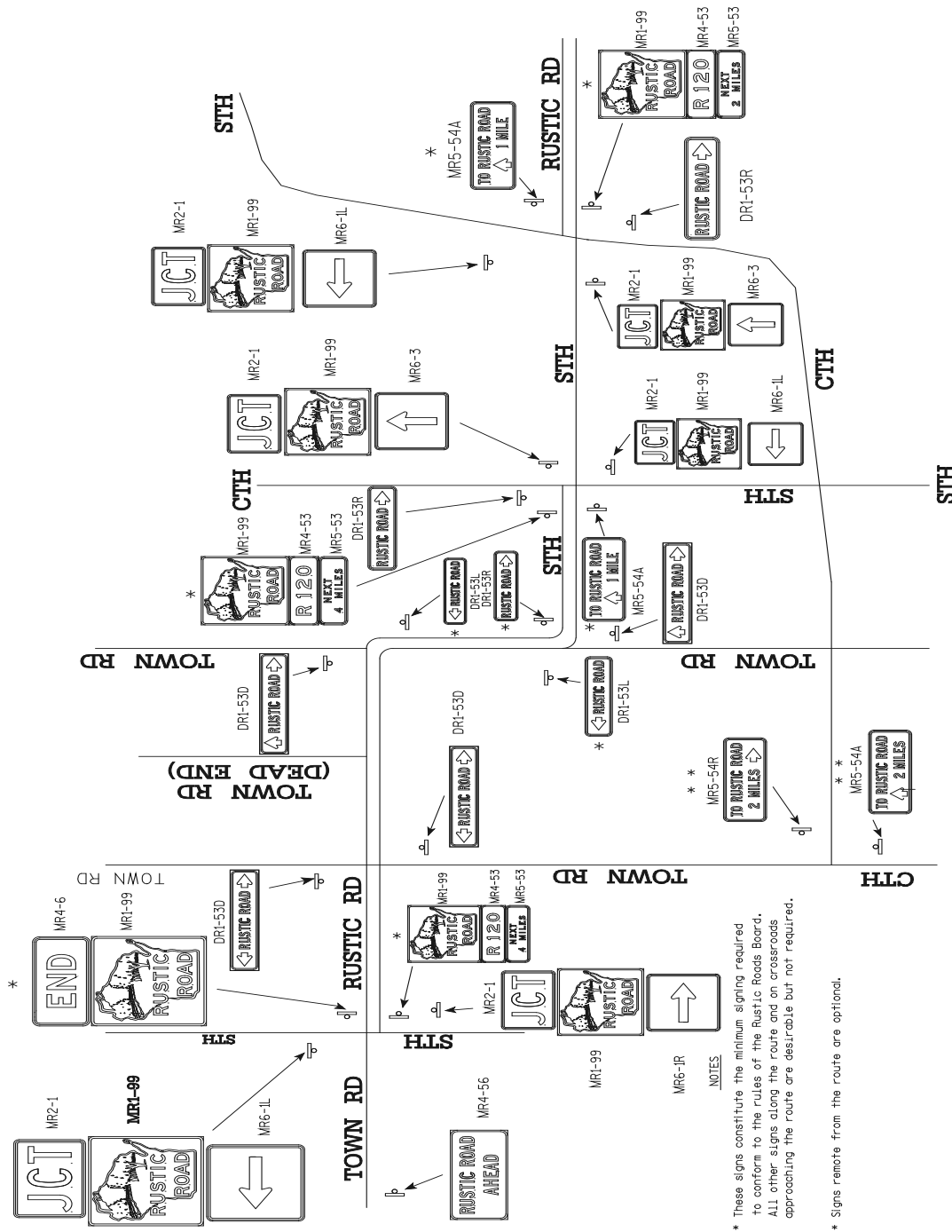
1. A minimum amount of signing *should* be used in order to avoid additional sign clutter at intersections, which can lead to safety issues. Figure 1 shows examples of the minimum amount of signing required to conform to the rules of the Rustic Roads Board.
 - a. JR-1 assemblies (RR Marker, Rustic Road Number, Mileage) shall be used at all Rustic Road termini. The mileage listed shall be the entire length of that Rustic Road designation, regardless of any splits or loops, rounded to the nearest mile.
 - b. JR-2 assemblies (RR Marker, Rustic Road Number) shall be used at interior intersections with State or US Highways
 - c. DR1-53 (Rustic Road w/arrow(s)) signs shall be used at any turns or splits along the Rustic Road route.
 - d. J4 assemblies (End, RR Marker) shall be used at all Rustic Road termini.
 - e. J13 assemblies (RR Marker, arrow) should be used on State or US Highway approaches to Rustic Roads. For County Highways designated as Rustic

Roads, this *may* be accomplished by combining Rustic Road signing with the Route Assemblies (J1/J12 and J13) for the County Highway.

- f. DR1-53 signs *should* be used on County Highway approaches to Rustic Roads.
- g. Gaps in Rustic Road routes *should* be signed with MR5-54 (To Rustic Road w/arrow & mileage) signs.
- h. No signing is typically necessary on local road approaches to Rustic Roads.

There is no formal phase-in period for installation of this signing. Existing signs will be allowed to remain in place until the end of their useful life. Useful life ends when the sign message no longer meets legibility or condition standards. Existing signs *may* be replaced prior to the end of their useful life when opportunities arise such as knockdown or damage, when other work is occurring nearby, or when projects make replacement practical.

- 1.
2. ~~On the state highway system, t~~The Department **shall** pay for the installation and maintenance of all Rustic Road signing. Major Rustic Road signing efforts *should* be done in the fourth quarter of the calendar year. Minor sign replacement *may* occur throughout the year, as feasible.
3. ~~For Rustic Road signing off of the state highway system, the Department will provide all signs to the local unit of government at no charge. The local unit of government **shall** pay for all installation and maintenance costs including posts and mounting hardware.~~
- 4.3. ~~_____~~ As signs on the local system wear out and need to be replaced, the local unit of government *may*should provide a list of signs needing replacement to request replacement signs, at no charge, from the Department.



* These signs constitute the minimum signing required to conform to the rules of the Rustic Road Board. All other signs along the route and on crossroads approaching the route are desirable but not required.

** Signs remote from the route are optional.

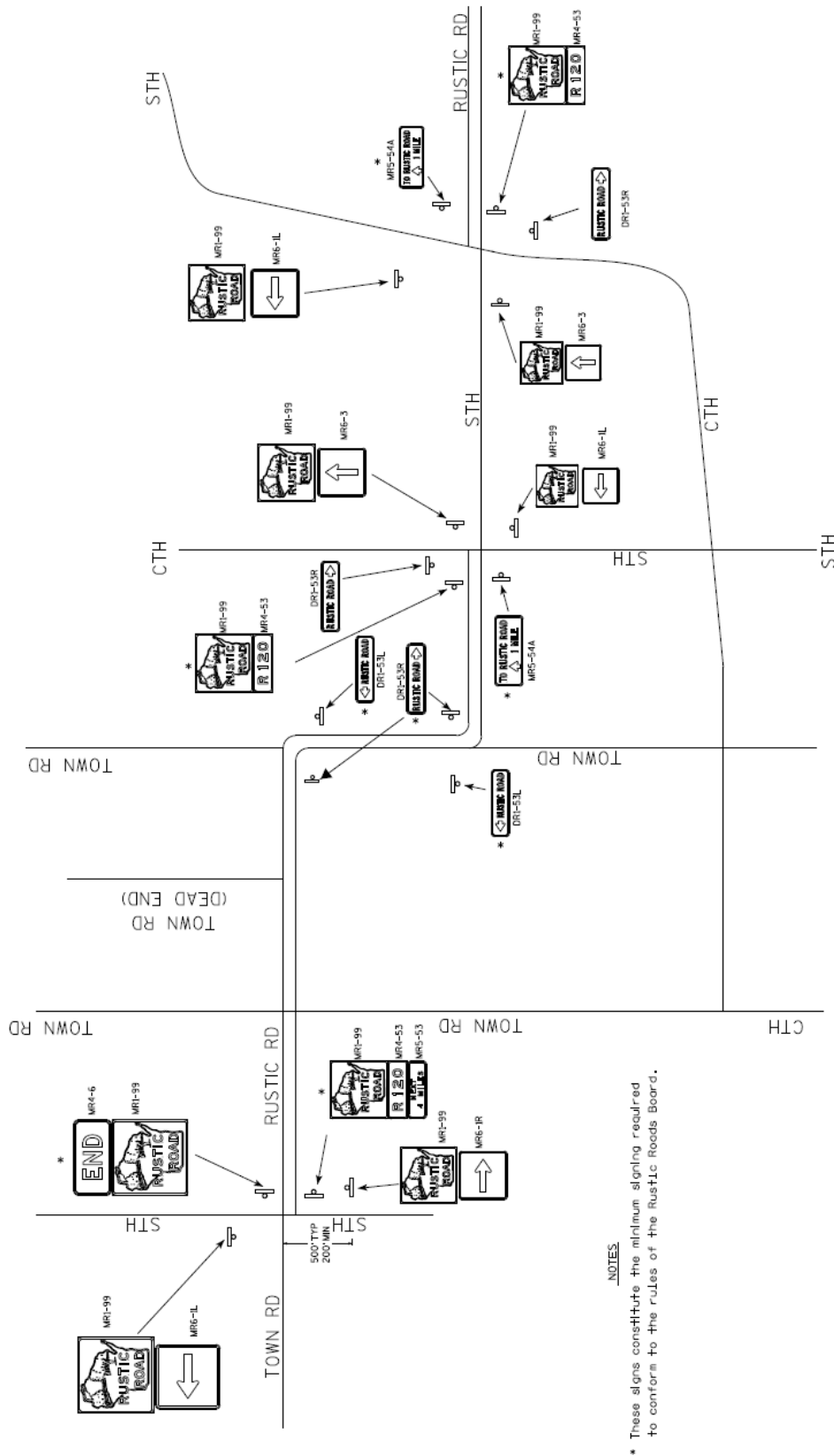


FIGURE 1



Traffic Guidelines Manual TEOPS

ORIGINATOR State Traffic Engineer	2-15-36
CHAPTER 2	Signing
SECTION 15	Comprehensive Guiding Policies
SUBJECT 36	Distance Signs, D2-Series & Post-Interchange E8-Series

A. Purpose

The purpose of this policy is to provide guidance for the use of Distance signs on State Highways under Department of Transportation jurisdiction. This policy guidance will address the selection of destinations, consistent determination of appropriate distances, sign design, and typical Distance sign placement.

General guidance on selection of destinations can be found in the [MUTCD 2009](#) edition, Sections [2D.37](#) and [2E.35](#). Specific guidance on the selection of destination cities can be found in TGM 2-15-5.

Guidance on the location of Distance signs is found in MUTCD Sections [2D.38](#) and [2E.39](#).

This policy does not apply to Interchange Sequence signs, which are addressed in MUTCD Section [2E.36](#).

B. Definitions

Distance Signs are defined as guide signs displaying a sequence of one to three destinations ahead with the distance to reach those destinations.

Freeways are defined as divided highways with fully controlled access at interchanges only. Interstate Highways are freeways with the interstate route designation.

Expressways are defined as divided highways with partially controlled access by a combination of interchanges, at-grade intersections, and driveways.

Conventional Highways are defined as streets or roads other than freeways or expressways. They may be divided or undivided, two-lane or multi-lane, and access is available at intersections and driveways.

National Control Cities are Chicago, Milwaukee, Beloit, Rockford, Janesville, Madison, Wisconsin Dells, La Crosse, Albert Lea, Eau Claire, St. Paul, Sheboygan, and Green Bay.

Regional Control Cities are defined as

- a. Urban areas in Wisconsin or within 60 miles of the state line with a population in the most recent decennial census of 30,000 or more,
- b. Other communities, such as Sturgeon Bay, Woodruff, Minocqua, and Lake Geneva, which are approved by the State Traffic Engineer based on their character as widely known tourism destinations, and
- c. Urban areas on or north of Highway 64 with a population exceeding 3500, and urban areas south of Highway 64 with a population exceeding 10,000.

Major Crossroads or Side Roads, in most cases, should be state highways, but may be a county highway or local arterial serving a nearby community.

C. Policy

General Guidance

- The combination Destination Direction and Distance signs, such as is designated D1-1a, D1-2a, or D1-3a in MUTCD, **shall not** be used on state highways.
- Unincorporated communities **shall not** be displayed on Distance signs unless the community is designated a Regional Control City.
- Traffic generator supplemental sign destinations **shall not** be displayed on Distance signs.
- The sign design format for distance signs **shall** use upper and lower case letters.
- The letter sizes **shall** be appropriate for the highway class; minimum 6-inch/4½-inch on conventional highways and minimum 8-inch/6-inch on expressways and freeways.

The selection of destinations **shall** be solely for the purpose of guidance and information for the non-local state highway driver, and **shall not** be used to promote communities, facilities, or preferential routes.

The first line of the sign **shall** designate the next selected “destination” in the direction of travel. If used, a second line of the sign *may* designate the second, or an interim, destination of importance in the direction of travel. The bottom line **shall** designate a National Control City or Regional Control City or the last incorporated city or village of the greatest significance, in that order of priority.

Distances **shall** be rounded up or down, as appropriate, to display the even mile.

Specific Guidance – Conventional Highways

The first destination on a Distance sign on a conventional state highway **shall** display either the next incorporated community (city or village), or the next major crossroad or side road, whichever is deemed the most beneficial information for the driver.

If used, the second line of the Distance sign *may* display the second major crossroad or a subsequent incorporated community served by the state highway. Selection of the community *may* be guided by use of the comparative population and distance formula in TGM 2-15-5. Selection *may* also be varied on successive Distance signs to display alternative communities served by the route.

The bottom line of a Distance sign on a state highway **shall** designate a National Control City or Regional Control City or the last incorporated city or village of the greatest significance, in that order of priority. The bottom line control city should be the same on all successive Distance signs along the route until that city is reached.

If the conventional state highway does not enter the corporate limits of a community, the community **shall not** be displayed on the Distance sign, but *may* appear on a Direction sign (D1-series) at the appropriate location.

Distances to a crossroad **shall** be rounded to the nearest even mile.

Distances to a community *may* be measured differently depending on the size of the community and how the state highway passes through it.

- If the community is not very large and the highway serves the central business district, the distance should be measured to that “downtown” area and *may* be rounded down.
- If the highway does not serve the downtown, the distance *may* be measured to the municipal limits or a major crossroad within the municipal limits and *may* be rounded up.
- If the city is large, the distance *may* be measured to a major crossroad or municipal feature within the city limits.

[Distance signs *should* be installed downstream from rural interchanges and STH/USH intersections, following the J4 and R2-1 signs. Distance signs are typically not installed within incorporated city or village limits. A distance sign *should* be installed where a conventional highway exits the limits of the last contiguous incorporated city or village, across from the I2-3. Distance signs *should not* be installed where the highway leaves an unincorporated community, unless the community is designated a Regional Control City.](#)

Specific Guidance – Expressways

The first destination on a Distance sign on an expressway **shall** display either the next incorporated community (city or village), or the next major crossroad or interchange, whichever is deemed the most beneficial information for the driver.

If used, the second line of the Distance sign *may* display the second major crossroad or interchange or a subsequent incorporated community served by the state expressway. Selection of the community *may* be guided by use of the comparative population and distance formula in TGM 2-15-5. Selection *may* also be varied on successive Distance signs to display alternative communities served by the route.

The bottom line of a Distance sign on an expressway **shall** designate a National Control City or Regional Control City or the last incorporated city or village of the greatest significance, in that order of priority. The bottom line control city should be the same on all successive Distance signs along the route until that city is reached.

If the state expressway does not enter the corporate limits of a community, the community **shall not** be displayed on the Distance sign, but *may* appear on a Direction sign (D1-series) or Exit sign (E1- or E4-series) at the appropriate location.

Distances to a crossroad or interchange **shall** include the exit ramp and **shall** be rounded to the nearest even mile.

Distances to a community *may* be measured differently depending on the size of the community and how the state expressway passes through it.

- If the community is not very large and the highway serves the central business district, the distance should be measured to that “downtown” area and *may* be rounded down.
- If the highway does not serve the downtown, the distance *may* be measured to the municipal limits or an interchange or major crossroad within the municipal limits and *may* be rounded up.
- If the city is large, the distance *may* be measured to an interchange or major crossroad or municipal feature within the city limits.

[Distance signs *should* be installed downstream from rural interchanges and STH/USH intersections, following the J4 and R2-1 signs. At interchanges, a Distance sign *should* be installed on the mainline downstream from the on-ramp, after the J4 and R2-1. Where multiple interchanges serve the same community, a Distance sign *should* only be installed after the last interchange serving that community. Where less than 3 miles exists between the on-ramp taper point and the next off-ramp theoretical gore, the Distance sign *may* be omitted.](#)

Specific Guidance – Freeways

The first destination on a Distance sign on a freeway **shall** display either the next interchange, or the next incorporated community (city or village), whichever is deemed the most beneficial information for the driver.

If used, the second line of the Distance sign *may* display the second interchange or a subsequent incorporated community served by the freeway. Selection of the community *may* be guided by use of the comparative population and distance formula in TGM 2-15-5. Selection *may* also be varied on successive Distance signs to display alternative communities served by the route.

The bottom line of a Distance sign on a freeway **shall** designate a National Control City or Regional Control City or the last incorporated city or village of the greatest significance, in that order of priority. The bottom line control city should be the same on all successive Distance signs along the route until that city is reached.

If the freeway does not enter or pass within one mile of the corporate limits of a community, the community **shall not** be displayed on the Distance sign, but *may* appear on an Exit sign (E1- or E4- or E9-series) at the appropriate location.

If the freeway does pass within one mile of the corporate limits of a community, the community *may* be displayed on the Distance sign, and *may* appear on an Exit sign (E1- or E4- or E9-series) at the appropriate location.

Distances to an interchange **shall** include the exit ramp to the crossroad and **shall** be rounded to the nearest even mile.

Distances to a community *may* be measured differently depending on the size of the community and how the freeway serves it.

- If the community is not very large and the freeway serves the central business district, the distance should be measured to a “downtown” interchange and *may* be rounded down.
- If the freeway does not serve the downtown, the distance *may* be measured to the municipal limits or a major interchange within the municipal limits and *may* be rounded up.
- If the city is large, the distance *may* be measured to a major interchange or municipal feature within the city limits.

At interchanges, a Distance sign *should* be installed on the mainline downstream from the on-ramp, after the J4 and R2-1. Where multiple interchanges serve the same community, a Distance sign *should* only be installed after the last interchange serving that community. Where less than 3 miles exists between the on-ramp taper point and the next off-ramp theoretical gore, the Distance sign *may* be omitted.



3-15-5 Temporary Pavement Marking

November 2016 January 2018

GENERAL

Temporary Pavement Markings help delineate the roadway during a construction project.

POLICY

Temporary Pavement Markings **shall** resemble the width and color of the permanent pavement markings. Temporary Pavement Markings can be one of the markings listed below:

1. Paint
 - a. Preferred product over the summer months.
2. Epoxy
 - a. Preferred product if the project will extend over the winter.
3. Removable Tape
 - a. **May** be used when it is applied to the permanent pavement, but not where the permanent marking will be placed.
 - b. **Shall not** be used over the winter.
4. Mask-out Tape
 - a. This is used to cover existing marking for the duration of the project, only if the marking will be there after the project.
 - b. This product *should* only be used for short term work, as long-term usage this *may* leave a residue on the underlying markings.
 - c. **Shall not** be used over the winter
5. Temporary Raised Pavement Markers- See [TEOpS 3-2-11](#) for further guidance. SDD [15C34-1](#).provides guidance on the placement of Temporary Raised Pavement Markers, Type II.

Transition Areas, Lane Shifts, and Crossovers *may* use the following marking for emphasis:

- Contrast lane lines (removable tape)
- Type I temporary raised pavement markers
- Solid lines (any product)

[When same day marking is used for less than 14 days, 4 foot temporary skips may be used with a 46 foot gap.](#)

3-15-15 Dynamic Envelope Marking

November 2015

PURPOSE

The MUTCD Section [8B.29](#) defines dynamic envelope pavement markings as a 4-inch solid white line, placed parallel to and 6 feet away from the nearest rail of an at-grade crossing. The MUTCD further defines a supplemental marking consisting of 12-inch solid white lines, placed at a 45-degree angle and 5 foot spacing between the 4-inch solid lines. This policy will clarify dynamic envelope pavement marking installation on state maintained roadways.

POLICY AND GUIDELINES

Between the 4-inch parallel lines, dynamic envelope markings fully cover 20 percent of the driving surface. This broad coverage area presents a potential safety hazard to bicycles and motorcyclists, as pavement marking

material offers significantly less surface friction than unmarked pavement. In addition, this large amount of marking creates a maintenance issue for the department. For these reasons, dynamic envelope markings **shall not** be utilized on state maintained roadways.

Certain grade-crossing locations on state maintained roadways *may* present operational issues. In lieu of dynamic envelope markings, the following signing countermeasures *may* be implemented:

1. The R8-8 "DO NOT STOP ON TRACKS" sign *may* be used at grade crossings where drivers tend to stop on the tracks.
2. The R10-6 "STOP HERE ON RED" sign *may* be used at grade crossings with signals downstream of the crossing.
3. The W10-11-A "XX FEET BETWEEN TRACKS & HIGHWAY" sign *may* be mounted in advance of a grade crossing where limited storage space exists between the tracks and a downstream intersection.
4. The W10-11-B "XX FEET BETWEEN HIGHWAY & TRACKS BEHIND YOU" sign *may* be used downstream of a grade crossing where limited storage space exists between the tracks and a downstream controlled intersection. If used, this sign *should* be mounted either below the STOP or YIELD sign, or just prior to the signalized intersection.



8-2-2 Grade Crossing Sign Installation

January 2018

PURPOSE

Railroad corporations have unique legal abilities and responsibilities. Due to this fact, some signage responsibility for highway traffic falls to the railroad. These requirements are listed in various sections of the Wisconsin State Statutes. This policy will clarify installation and maintenance responsibilities for traffic signs at at-grade crossings.

DEFINITIONS

Passive Grade Crossings are defined as at-grade highway-railroad crossings without automatic gates or flashing-light signals.

Maintaining Authority is defined as the unit of government with the responsibility for roadway maintenance at a given crossing.

POLICY AND GUIDELINES

The following table summarizes the installation and maintenance responsibilities of various sign installed in conjunction with at-grade railroad crossings. See the text following the table for further details.

SIGN	INSTALLED BY	MAINTAINED BY
R15-1	Railroad	Railroad
R15-2P	Railroad	Railroad
R1-2	Railroad	Railroad
R1-1	Maintaining Authority	Maintaining Authority
R15-3P	Maintaining Authority	Railroad
R8-9	Railroad	Railroad
W10-1	*	Maintaining Authority
W10-1A	Maintaining Authority	Maintaining Authority
Other W10 series signs	Maintaining Authority	Maintaining Authority
I-13	Railroad	Railroad

REGULATORY SIGNS

R15-1 (Crossbuck) signs: These signs **shall** be installed and maintained by the Railroad at all at-grade crossings, per [State Statute 192.29\(5\)\(a\)](#). The railroad **shall** also install and maintain an R15-2P (Number of Tracks) sign below the R15-1 at all non-gated grade crossings with multiple tracks.

R1-2 (Yield) signs: These signs **shall** be installed and maintained by the Railroad at all non-stop controlled passive grade crossings, per [State Statute 192.29\(5\)\(b\)](#).

R1-1 (Stop) signs: These signs *may* be installed at at-grade crossings when deemed necessary for the public safety. If installed, these signs **shall** be installed and maintained by the maintaining authority, per [State Statute 349.085](#).

R15-3P (Exempt): These signs **shall** be installed underneath the R15-1 sign (or R15-2P sign, if present) at crossings declared Exempt by the Office of the Commissioner of Railroads. The initial furnishing and installation of these signs **shall** be the responsibility of the maintaining authority, but **shall** be maintained by the Railroad. See [State Statutes 195.285](#) and [346.45\(3\)\(d\)](#).

R8-9 (Tracks Out of Service) signs: These signs should be used in place of crossbucks when railroad tracks have been taken out of service as described in the [2009 Wisconsin MUTCD](#) Section 8B.10. These signs **shall** be installed and maintained by the Railroad.

WARNING SIGNS

*W10-1 (Grade Crossing Advance Warning) sign: These signs **shall** be installed at all at-grade highway crossings, unless specifically not required in the [2009 Wisconsin MUTCD](#) Section 8B.06. When used, these signs (and any needed replacements) **shall** be furnished, upon request, by the Railroad for at-grade crossings of county or township maintained roadways, and by the maintaining authority for at-grade crossings of state, city, or village maintained roadways. These signs **shall** be installed by the maintaining authority. See [State Statute 195.286\(1\)](#).

W10-1A (Exempt) sign: These signs **shall** be installed underneath the W10-1 sign at crossings declared Exempt by the Office of the Commissioner of Railroads. These signs **shall** be installed and maintained by the maintaining authority. See [State Statutes 195.285](#) and [346.45\(3\)\(d\)](#).

All other W10 series signs – If used, these signs **shall** be installed and maintained by the maintaining authority.

OTHER SIGNS

I-13 (Emergency Notification Sign): These signs **shall** be installed and maintained by the Railroad at all at-grade highway crossings. These signs **shall** also be installed by the Railroad at all private at-grade crossings, by request of the landowner, per [State Statute 192.29\(6\)](#).



BACKGROUND

Speed limit reduction for temporary traffic control zones is discussed in Part 6 of the MUTCD. Excerpts from Section [6C.01](#) of the MUTCD state:

“Reduced speed limits *should* be used only in the specific portion of the temporary traffic control zone where conditions or restrictive features are present.”

“A temporary traffic control plan *should* be designed so that vehicles can travel through the temporary traffic control zone with a speed limit reduction of no more than 10 mph.”

“Reduced speed zoning (lowering the regulatory speed limit) *should* be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.”

“Research has demonstrated that large reductions in the speed limit increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 10 mph cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 10 mph from the normal speed limit has been shown to be more effective.”

The MUTCD guidance corresponds with conclusions of research titled, “Work Zone Speed Limit Procedure,” documented in Transportation Research Record Volume 1657 and National Cooperative Highway Research Program Digest 192. Conclusions of the report include:

1. Motorists reduce their speed in temporary traffic control zones even with no speed limit reduction.
2. Where temporary traffic control zone speed limits are posted, motorists reduce their speed but not to the posted limit.
3. If a reduced speed limit is posted, compliance and crash prevention benefit are best if the speed limit is reduced no more than 10 mph.
4. There is commonly more variance in speed in temporary traffic control zones than in non-zones.
5. Where all work activity is on or beyond the shoulder, there are no benefits from reducing speed limits.
6. Interviews with motorists show that they resent arbitrary, inappropriate speed limits.
7. If a reduced speed limit is posted, the reduced limit must be removed where no activity is present.

To be consistent with the MUTCD and documented research, reductions in speed limits for temporary traffic control zones *should* be evaluated according to the criteria in this procedure.

There is often less need for reduced speed limits in temporary traffic control zones on rural conventional highways. The main reason is that on rural conventional highways, drivers do not have the same expectation for free-flowing traffic as they do on rural freeways. With driveway access and crossing movements on conventional highways, drivers tend to be alert to such movements and other similar conflicts even without reduced speed limits.

Changes in alignment such as crossovers and transitions, or work activities that occupy a short work area, *should not* be posted with short sections of regulatory speed limit signs. If a lower operating speed is necessary, warning signs with advisory speed plaques are more appropriate.

AUTHORITY

Authority to approve and establish temporary traffic control zone speed limits has been delegated to the Regional ~~Work Zone Engineer~~ ~~Transportation Director and/or designee, typically the Regional Traffic Engineer/Supervisor~~. This conditional delegation effectively retained ~~State Traffic Engineer~~ BTO Work Zone Operations Engineer approval authority for 65-mph and 70-mph highways.

POLICY CRITERIA

Engineering judgment must be used when determining appropriate speed zones. This procedure is intended to assist with the development of an appropriate work zone speed limit. Contact the region work zone engineer or the Bureau of Traffic Operations for assistance with applying this policy.

The majority of drivers operate their vehicles at a speed they deem appropriate for conditions. A posted speed that is close to what most drivers consider appropriate is more likely to yield uniform speeds. Consistent speeds improve safety for the travelling public and highway construction workers.

Speed zones provide drivers an indication of what is considered a reasonable speed for that section of roadway. Proximity to construction activities, drop offs, lane closures, narrow lanes/shoulders and pavement condition all influence the driver's determination of a reasonable speed. The type of construction work, project length, area type (i.e. urban vs. rural), facility type, occurrence of night work and traffic mix (e.g. commuter, recreational, truck percentages) all impact driver expectations and the determination of what is a reasonable speed. The policy criteria described below *should* only be used for freeways and expressways during intermediate-term and long-term work activities as defined in Part 6 of the MUTCD.

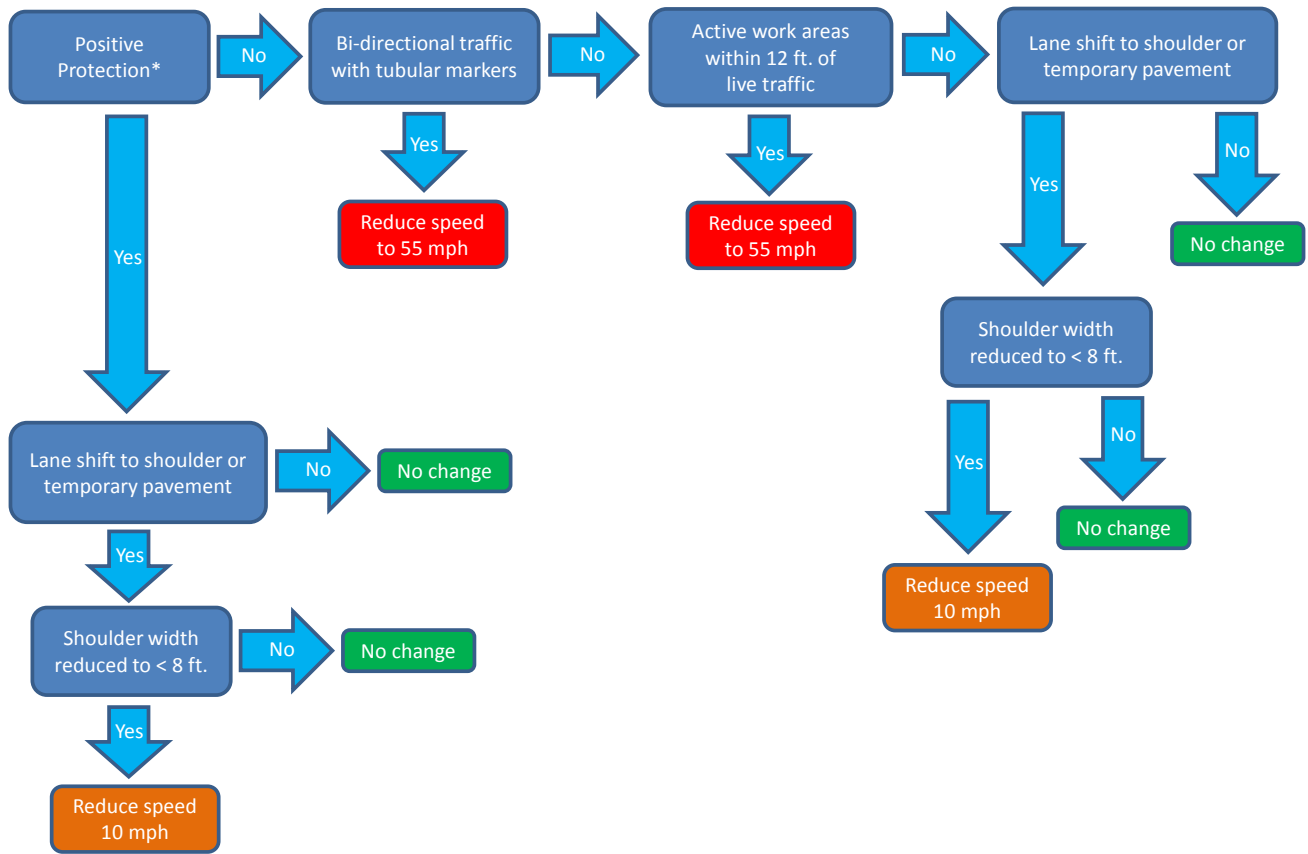
Speed reductions in segments without active work lead to disregard of the posted speed. When there is no work activity or traffic control devices are pulled back and lanes re-opened, the temporary speed limit *should* be removed. Work with your project manager to incorporate special provisions for removing temporary speed zones when there is no work activity.

Tables 1 and 2 and Figure 1 *should* be used, along with engineering judgment, to develop an appropriate work zone speed limit. The most restrictive work zone impact *should* be used as the determining condition.

Table 1. Temporary Traffic Control Zone Speed Limit Conditions






Work Zone Condition	Original Posted Speed Limit (mph)	Speed Limit Reduction (mph)
Lane width less than 12 ft.	65 - 70	Up to 10
	≤ 55	0
Lane shift to shoulder or temporary pavement	65 - 70	Up to 10
	≤ 55	0
Lane closure without positive protection	65 - 70	Up to 15
	≤ 55	0
Shoulder width less than 8 ft.	65 - 70	Up to 10
	≤ 55	0

Figure 1. Temporary Traffic Control Zone Speed Limit Chart



*Positive protection is defined by FHWA as a temporary precast concrete barrier that contains or redirects vehicles and separates workers from the active travel lanes.

Table 2. Example Temporary Traffic Control Zone Scenarios

	<p>Bi-directional traffic separated by flexible tubular markers</p>
	<p>Active work areas within 12-ft. of live traffic without positive protection</p>
	<p>Lane shift to shoulder or temporary pavement</p>
	<p>Lane closure without positive protection</p>
	<p>Shoulder width less than 8 ft.</p>

SPEED ZONE DECLARATIONS

Reduced speed limits in temporary traffic control zones are subject to documented approval by the State Traffic Engineer or their delegate’s approval identified as “Reviewer” on the Speed Zone Declaration. A Speed Zone Declaration **shall** be submitted through the Department’s Speed Zone Application (Figure 2) found at the following link:

<https://webapp.dot.state.wi.us/speedzones/>

Requests for access to the Speed Zone Application should be sent to the State Traffic Safety Engineer in the Bureau of Traffic Operations.

The temporary speed zone requestor **shall** include justification for the speed zone request, supporting documentation including, but not limited to, temporary traffic control plans, construction project ID associated with the speed zone and an explanation of any exceptions to the policy criteria described above.

Where speed limit reductions in temporary traffic control zones are determined to be appropriate, the declaration *should* be written to indicate its association with the appropriate project so that a follow-up declaration to rescind is not necessary. A suggested format is:

Interstate Highway 94

*(). Fifty-five miles per hour from a point one mile west of County Trunk Highway "X" in Jefferson County, to a point 0.5 miles east of the roadway structures of State Trunk Highway 26 for the duration of construction of Project 1234-56-78. This speed limit declaration **shall** be effective only when workers are unprotected, there is active work within 12-ft. of live traffic, and the speed limit is posted by regulatory signing.*

For long-term work zones that overlap construction years, the Region **shall** denote the time period of the speed limit reduction during the appropriate construction year(s). Example:

This declaration is valid from the commencement of the active construction operations to the final conclusion of active construction operations during calendar year (CY) 2016 within WisDOT construction project ID XXXX-XX-XX.

Figure 2

Adding Speed Zone Declaration

CORRESPONDENCE/MEMORANDUM

Declaration Type: Permanent Speed Zone Declaration Temporary Speed Zone Declaration

Region: SW-Southwest County:** Select County Municipality: Select CMTY

Declaration ID: SZ - - - 2015** - 35 (SZ - County Code - Highway No - Year - Two Digit Sequence No)

Submitter: SILVERSON, EMILY S Status: In Process Update User:

STUDY LOCATION

Rescind Speed Zone Declaration:

Highway/Street Name:*

Total Segment Length (mi):

School Zone:

Reason(s) for Speed Limit Change:

REQUEST FOR APPROVAL OF DECLARATION

BTO Approval Required:* Yes No

Permanent Declaration:

The following information supporting the recommendation is enclosed with this request:

Map showing limits Speed Study data

Crash history data Aerial/site location photo(s)

Documents of public interest Highway log files

Other (please specify):

Additional comments that may be significant or noteworthy:

Reasoning for omission of any information requested:

** fields required for saving the declaration;
* fields required for submitting the declaration.