

SYNTHESIS OF NON-MUTCD TRAFFIC SIGNING



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Executive Summary

Most States and many local jurisdictions have developed and routinely use a number of unique traffic sign legends, designs, and symbols. Typically, these signs have been developed because of the need to communicate certain regulatory, warning, and guidance messages for which there are no existing adopted national uniform sign legends or symbols in the Manual on Uniform Traffic Control Devices (MUTCD.)

If several or many States are using a particular sign that is not in the MUTCD, it can be reasonably presumed that the MUTCD is not serving a common need identified by the States. Because of the lack of a national standard design, variations are bound to develop among the States and local agencies in the legend, layout, shape, and even the color of signs intended to communicate the same basic message.

The purpose of this synthesis has been to:

- Collect information on special (non-MUTCD) sign legends, designs, and symbols used by the State DOTs (including DC and Puerto Rico) and by selected large cities and counties;
- Identify commonalities, such as what special conditions are the most common reasons for developing a special sign and what design elements (legend, symbol, etc.) have been most commonly used to communicate the message; and
- Determine the most likely candidate sign legends and symbols for potential future addition to the MUTCD and make recommendations for standardized sign designs to be used for the given conditions.

Through FHWA Division Office staff and other contacts, each State DOT was asked to provide hardcopy documents or website links to electronic documents with information on “special signs” routinely used in their State. The exhibits included in this synthesis report display all of the pertinent available sign information collected from 45 State DOTs as well as several large local government highway agencies and other sources.

The collected information reveals that a considerable number and variety of non-MUTCD signs are in routine use by State and local highway agencies in the U.S. In many cases, jurisdictions have used the flexibility given to them by the MUTCD to develop and install special word message signs to communicate unique traffic regulations or warnings of conditions that are not specifically covered in the MUTCD. In some cases the same word message is used by most or all States to describe a particular condition. However, more often there is considerable variety among the States in the specific words or phrases used to communicate the same basic information to road users. In some cases, agencies have developed and used unique symbols, alone or in combination with words, to convey a message not contemplated by the MUTCD.

Standard Canadian MUTCD signs, especially symbolic signs in longstanding use in that neighboring country, have been given special consideration in formulating the recommendations in this synthesis. Canada has moved considerably farther into symbolization of common regulatory, warning, and guide/information messages (sometimes by adopting European symbols) than has the U.S. When there is a well-designed Canadian symbol with an intuitively obvious meaning for a sign message that some or many States are using a non-MUTCD word message sign (often with many variations among States), strong consideration should be given to adopting the Canadian symbol or a close likeness into the U.S. standards, with a temporary educational plaque as needed. Increasing uniformity or harmony with Canadian signing designs would greatly enhance the convenience and safety of U.S. and international travelers when they are driving or walking.

The following lists this report’s recommendations for new or revised signs that the National Committee on Uniform Traffic Control Devices (NCUTCD) and the Federal Highway Administration (FHWA) should consider for future addition to the MUTCD:

<u>Recommended Sign(s)</u>	<u>Purpose</u>
<u>REGULATORY SIGNS:</u>	
EXCEPT RIGHT TURN	Use with STOP sign in special cases
STATE LAW—STOP FOR (YIELD TO) PEDESTRIANS WITHIN CROSSWALK	Ground-mounted and overhead-mounted versions of the existing R1-6 and R1-6a In-Roadway signs
STOP HERE FOR PEDESTRIANS	Alternative to existing R1-5 (Yield Here to Pedestrians.)
TURNING VEHICLES (arrow) (Yield symbol) TO (Pedestrian symbol)	Replace existing R10-15 word message sign
NEIGHBORHOOD RESIDENTIAL CITYWIDE UNLESS OTHERWISE POSTED	Plaques for use with Speed Limit sign for areawide speed limits
WORK ZONE	Plaque for use above Speed Limit signs for reduced speed in work zone
RADAR ENFORCED ENFORCED BY AIRCRAFT	Plaques for use with Speed Limit signs.
FINES DOUBLED	Replace existing R2-6 Fines Higher sign
BEGIN (END) DOUBLE FINES ZONE	Establish start and end points of special zone
Symbolic No Thru Movement	Prohibit thru movement where Do Not Enter is not appropriate
Symbolic No Turns	Replace existing R3-3 word message sign
Versions of R3-5, R3-6, and R3-8 lane use arrows signs featuring U-Turn arrows, separately and combined with left turn arrows	Where u-turns must be specifically signed as allowable movement

THRU TRAFFIC KEEP RIGHT (LEFT) THRU TRAFIC LEFT (RIGHT) 2 LANES THRU TRAFFIC BOTH LANES	Supplement other signs where needed
RIGHT (LEFT) LANE MUST EXIT	Freeway lane drops
Symbolic No Thru or Right Turn Symbolic No Thru or Left Turn LEFT TURN ONLY RIGHT TURN ONLY	Supplemental use with Stop or Yield sign where all traffic must turn
ALL TRAFFIC MUST TURN RIGHT (LEFT)	In advance of intersection where all traffic must turn
FORM X (numeral) LANES	Where number of lanes not readily apparent
BEGIN and END	Plaques for use with regulatory signs for non-point-specific regulations
X (red) Down Arrow (green)	Static signs simulating lane use control signals for use with non-reversed lanes
ALL TURNS NEXT RIGHT U AND LEFT TURNS NEXT RIGHT ALL TURNS FROM RIGHT LANE ALL TURNS (with directional arrow)	Jug handle regulatory signs
DO NOT PASS WHEN SOLID LINE IS ON YOUR SIDE	Remind road users of meaning of solid yellow line for no passing zones
Canadian/International symbol for No Passing	Evaluate for future replacement of R4-1 Do Not Pass word message sign
DO NOT DRIVE ON SHOULDER DO NOT PASS ON SHOULDER	Prohibit driving or passing on shoulder
KEEP RIGHT EXCEPT TO PASS	Prohibit passing on right on multilane roadways
SLOW VEHICLES WITH X OR MORE FOLLOWING VEHICLES MUST USE TURN-OUT SLOW VEHICLES MUST USE TURN-OUT X MILE AHEAD SLOW VEHICLES MUST TURN OUT (with arrow)	Regulations requiring slow vehicles to use turn-outs to avoid delaying following vehicles
Narrow version of R4-7 Keep Right symbol	For narrow median noses only
NO THRU TRAFFIC NO THRU TRUCKS	Prohibit use of a local residential street by thru traffic or by thru trucks
EXCEPT LOCAL DELIVERIES	Plaque for use with R5-2 No Trucks symbol, alternative way of signing No Thru Trucks
Symbolic No Snowmobiles	Prohibit operation of snowmobiles on certain roadways

BEGIN ONE WAY END ONE WAY	Denote start and end points of one-way traffic regulations along a street
Symbolic midblock parking pay station	Indicate location of midblock pay station, requirement to pay for parking, and time limit for parking
PARALLEL PARKING ONLY DIAGONAL PARKING ONLY	Regulate specific manner of parking
ALL PEDESTRIANS (with horizontal arrow)	Direct pedestrians to follow a particular diversion route
(bicycle symbol) MUST EXIT X/X MILE (bicycle symbol) MUST EXIT (with diagonal arrow) (bicycle symbol) USE SHOULDER (bicycle symbol) WALK YOUR BIKE	Regulations to direct bicyclists in certain situations
U TURN SIGNAL	Identify a signal face that applies only to u-turn vehicles
NO TURN ON RED FROM LEFT (or CENTER or Other) LANE NO TURN ON RED FROM THIS LANE (with down arrow)	Ground-mounted and overhead signs to prohibit turns on red from only a specific lane or lanes
X VEHICLE(S) PER GREEN X VEHICLE(S) PER GREEN EACH LANE	For ramp metering signals
PUSH BUTTON TO TURN ON WARNING LIGHTS	pedestrian instruction sign for use with in-roadway flashing warning lights or actuated flashing beacon with warning sign
Canadian symbol for push button	Evaluate for future replacement of R4-1 Do Not Pass word message sign
(Bicycle symbol) PUSH BUTTON FOR GREEN LIGHT (Bicycle Symbol) PUSH BUTTON FOR BIKE SIGNAL	Bicycle instruction signs for use when bike-specific timing is provided
Symbolic photo red light enforcement (traffic signal symbol and Canadian symbol for camera enforcement)	In advance of intersection with photo red light enforcement, when Signal Ahead sign is not used
TRUCKS—NO ENGINE BRAKING NEXT X MILE END ENGINE BRAKE RESTRICTION	Start and end of "jake brakes" prohibitions

STOP FOR SCHOOL BUS LOADING OR UNLOADING STOP FOR SCHOOL BUS WHEN RED LIGHTS FLASHING	Remind road users of State law requirements to stop for school buses loading or unloading children
\$XXX FINE FOR LITTERING HIGHWAY DO NOT THROW LITTER---\$XXX FINE	Littering prohibitions and fine amounts
LIGHTS ON WHEN RAINING LIGHTS ON WHEN USING WIPERS	Remind road users of State law requirements for headlight use
TURN ON HEADLIGHTS NEXT X MILES BEGIN (END) DAYTIME HEADLIGHT USE SECTION TURN ON (OFF) HEADLIGHTS CHECK HEADLIGHTS	Requirement for daytime headlight use for a specific section of highway
FENDER BENDER?--MOVE VEHICLES FROM TRAVEL LANES	Remind road users of "Move It" law to aid in incident management

WARNING SIGNS:

Combined Turn Warning and Regulation Ahead Warning	Research and evaluate to develop effective designs with symbols, for use on very short ramps with sharp curvature and stop sign or signal at end of ramp
Special emphasis backboards for warning signs	Option for special emphasis in unusual situations
Additional depictions of Combination Horizontal Alignment and Intersection Warning	Alternatives to W1-10 for other frequently occurring geometries of side roads and crossroads
Offset side roads symbol Closely spaced side roads symbol	Alternatives to W2-2 for commonly occurring specific geometries
NEW	Plaque for temporary short-term use with any new regulatory sign or advance warning sign for a new regulation
NEW TRAFFIC PATTERN AHEAD	Advance warning of change in traffic patterns (new lane usage, geometry, signal phasing, etc.)
RAMP METERED WHEN FLASHING	Advance warning that ramp meter signal is in operation
PREPARE TO STOP WHEN FLASHING	Use with flashing beacon tied to traffic signal controller
NO MERGE AREA	Supplemental use with Yield sign where no acceleration lane is present but this condition is unexpected

RIGHT LANE EXIT ONLY AHEAD RIGHT LANE TURNS RIGHT AHEAD	Advance warning of lane drop ahead on freeway or surface street, respectively.
THRU TRAFFIC MERGE LEFT (RIGHT)	Additional warning of lane drop, supplementing other warning signs
ONCOMING TRAFFIC DOES NOT STOP TRAFFIC FROM RIGHT (LEFT) DOES NOT STOP TRAFFIC ON HWY XX DOES NOT STOP	Alternative legends for W4-4p plaque under different geometric and traffic control conditions
SHOULDER NARROWS LANE NARROWS (or LANES NARROW)	In advance of location where shoulder or lane becomes narrower
NARROW SHOULDER NARROW LANE(S)	Periodically along road sections with narrow shoulder or narrow lane(s)
MAX XX' WIDTH (with horizontal arrows)	Warn of actual lane width or passage way width
Symbolic two way traffic warning for 3-lane roads (3 arrows)	Alternative to W6-1 for use only on 3-lane 2-way roads.
ONE WAY TRAFFIC AHEAD	Advance warning of change from two-way to one-way flow on a roadway
DAMAGED PAVEMENT	Warn of damaged pavement ahead (cracks, ruts, breaks, heaves, unusually rough, etc.)
Symbolic Shoulder Drop-Off or Uneven Lanes Warning	Replace existing word message signs for Low Shoulder, Shoulder Drop-Off, and Uneven Lanes
NO SHOULDER	Warn of end of shoulder ahead or repeat warning of lack of shoulder along a section of roadway
Symbolic Falling (Fallen) Rock Warning	Warn of falling or fallen rocks, earth slides, landslides, etc.
ROAD MAY BE FLOODED ROAD FLOODED	Warn of possibility of road flooding (water on or over road) or actual road flooding, respectively.
Water Depth Gauge Sign	At point where road flooding routinely occurs, to show depth of water over pavement
Symbolic warning of possible icy conditions	Warn of possibility of icy conditions on bridge decks or roadways when temperature is at or near 32 degrees (replace existing W8-13 Bridge Ices Before Road word message sign)
ICY ROAD	Warn of actual icy conditions

Symbolic Warning for Grooved or Textured Pavement	Warn of any grooved, milled, or textured surface requiring extra care and attention by motorcyclists, bicyclists, or both
Symbolic Warning for Steel Grid Bridge Deck	Warn of metal grid bridge deck requiring extra care and attention by motorcyclists, bicyclist, or both
Symbolic Warning for Uneven or Rough Railroad Grade Crossing for Bicyclists	Warn of conditions at grade crossings requiring extra care by bicyclists
Symbolic Warning for Trucks Entering Highway	Warn of locations where trucks enter but do not cross the highway and special conditions require extra caution by users
WATCH FOR STOPPED TRAFFIC	Warn of possible stopped traffic at unexpected locations, regardless of type of vehicles stopped or whether they are turning or not
Symbolic Congestion warning	Evaluate European/International symbol for possible future adoption.
Symbolic Moose Crossing Symbolic Elk/Caribou/Antelope Crossing Symbolic Wild Horses Crossing Symbolic Burro/Donkey Crossing Symbolic Bull/Steer Crossing Symbolic Sheep Crossing Symbolic Bighorn Sheep Crossing	Warn of frequent crossings of certain large animals that may cause significant damage or injury if struck
NO HIGHWAY FENCES NEXT XX MILES -- WATCH FOR ANIMALS CROSSING	Use to warn of livestock "open range" areas
Symbolic Combined Pedestrian and Bicycle Crossing Warning	Advance warning of crossings of shared-use paths that cross uncontrolled roadway approaches
Combined Exit Advisory Speed and Turn Warning Combined Ramp Advisory Speed and Turn warning	Where ramp or exit curvature is not apparent to drivers in the deceleration lane or where curvature needs to be specifically identified as being on the ramp rather than the mainline
WATCH FOR FOG	Warn of frequent possibility of fog conditions reducing visibility on specific roadway section
GUSTY WINDS AREA	Warn of frequent possibility of gusty side winds along a specific highway section of concern to high center of gravity vehicles

FREEWAY ENDS X/X MILE FREEWAY ENDS	Advance warning of end of freeway ahead and actual end of limited access highway conditions, respectively
SIGNAL UNDER STUDY FOR REMOVAL	Public notice of signal removal being considered
NO ROAD LINES	Warn of temporary lack of pavement markings during resurfacing operations
Symbolic School Bus Stop Ahead Warning	Replace existing S3-1 word message sign

OTHER SIGNS:

Destination Guide Signs for Jug Handles	For jug handle geometries where turns are made before the intersection and beyond the intersection.
Combination of Lane Use and Destinations on Guide Signs	Determine consistent and uniform practice
NEXT TRUCK (PASSING, CLIMBING) LANE X MILES TRUCK (PASSING, CLIMBING) LANE XXX FEET (X/X MILE)	Delete R4-6 sign and replace with guide signs for various types of added lanes, to inform road users of distance ahead that added lane starts
SLOW VEHICLE TURN-OUT X/X MILE	Inform road users of distance to slow vehicle turn-out ahead
CHAIN UP AREA X/X MILE BRAKE CHECK AREA X/X MILE RUNAWAY TRUCK RAMP X/X MILE	Inform road users of distance ahead to chain-up area, brake check area, or runaway truck ramp (delete W7-4, W7-4b, W7-4c warning signs)
CHAIN UP AREA (with diagonal arrow) BRAKE CHECK AREA (with diagonal arrow) RUNAWAY TRUCK RAMP (with diagonal arrow)	Exit direction sign at entrance to chain-up area, brake check area, or runaway truck ramp (delete W7-4b warning sign)
Street Name Sign with Route Number Shield	Option for streets that are part of a numbered highway route
Binoculars symbol for Wildlife Viewing Area WILDLIFE VIEWING AREA (with binoculars symbol and directional arrow)	Recreational guide signing
Symbolic TDD Services sign	General Services (D9) signing for availability of Telecommunication Devices for the Deaf (TDD)
(Snowmobile symbol) SNOWMOBILE ROUTE (ATV Symbol) ATV ROUTE	Alternatives to D11-1 bike route sign for signing of routes for snowmobiles and ATVs
Black on Orange Guide Signs in TTC Zones	Clarify whether this is option, guidance, or standard

EXPRESS LANES LOCAL LANES ALL EXITS ALL TRUCKS NO TRUCKS	E11 type panels for Guide Signs where freeway has separate roadways in same direction
LEFT LEFT EXIT	E11 type panels for guide signs involving left exits
EXIT XX MPH	E11 type panel for use on guide signs for special emphasis at exits with especially low ramp or exit speed
Symbol for Ferry Terminal	I-series sign for guidance to route leading to car ferry terminals
Indian Road Route Marker	Uniform design for State, Indian tribe, or Bureau of Indian Affairs numbered Indian Road routes within or leading to Indian reservations.
Color Coded Detour Route Signs	"Red Route", "Blue Route", etc., for use where multiple permanently-signed detour routes within an existing freeway corridor or urban area are established and need to be differentiated from each other.
BEGIN	M4 auxiliary for use above route marker to indicate beginning point of a given route
TOLL	M4 auxiliary for use above route marker when the road is a toll facility
LEFT LANE RIGHT LANE	M6 auxiliary for use under route markers in assemblies in advance of junction, to supplement normal assemblies with arrow auxiliaries

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SYNTHESIS OF NON-MUTCD TRAFFIC SIGNING

1. Background and Purpose:

Most States and many local jurisdictions have developed a number of unique traffic sign legends, designs, and symbols to communicate certain regulatory, warning, and guidance information to road users. Typically, these signs have been developed to communicate messages for which there are no existing adopted national uniform sign messages or symbols in the Manual on Uniform Traffic Control Devices (MUTCD.)

If several or many States are using a particular sign that is not in the MUTCD (or the companion Standard Highway Signs (SHS) book), it can be reasonably presumed that the MUTCD is not serving a common need identified by the States. Because of the lack of a national standard design, variations are bound to develop among the States and local agencies in the legend, layout, shape, and even the color of signs intended to communicate the same basic message. Uniformity would enhance traffic safety and convenience by assuring that road users would encounter identical messages to regulate, warn, or guide them when they encounter a particular condition, no matter where they travel.

Therefore, the purpose of this synthesis has been to:

- Collect information on special (non-MUTCD) sign legends, designs, and symbols used by the State DOTs (including DC and Puerto Rico) and by selected large cities and counties;
- Identify commonalities, such as what special conditions are the most common reasons for developing a special sign and what design elements (legend, symbol, etc.) have been most commonly used to communicate the needed information about those conditions to road users; and
- Determine the most likely candidate sign messages and symbols for potential future addition to the MUTCD and make recommendations for standardized sign designs to be used for the given conditions.

2. Methodology:

Through FHWA Division Office staff and other contacts, each State DOT was asked to provide hardcopy documents or website links to electronic documents with information on “special signs” routinely used in their State, such as:

- State MUTCDs or MUTCD Supplements
- State signing manuals or traffic engineering manuals
- State Standard Highway Signs books, sign fabrication guides, or Sign Catalogs
- State signing policies memoranda
- State standard drawings or “typicals” drawings for projects

Full or extensive information on all State signs was available from 27 States. Only some or limited (incomplete) information on State signs was available from 18 States. Seven States provided no hardcopy or website information at all on their signs.

A few cities and large counties provided sign information electronically or in hardcopy form. Pertinent non-MUTCD signs included in the sign catalog of Tapco, Inc., one of the many major private suppliers of traffic signs, have also been included in this synthesis. Suppliers such as Tapco are the source of traffic signs for many smaller local jurisdictions. The inclusion of a non-MUTCD sign in a major supplier's catalog indicates the supplier's clients have frequently requested such a sign and thus it is likely to be in widespread use in local jurisdictions.

In cases where the Canadian or Mexican MUTCDs contain standard signs for conditions for which the States have developed special signs, that information has been included. Also, when information was available on special signs used by one or more Canadian provinces (but not in the Canadian MUTCD) for conditions that U.S. States are using similar special signs, that information has been included. Further, photos of pertinent special signs have been included, to help fill information gaps where possible, particularly for States that supplied little or no information for the synthesis.

3. Results:

The exhibits included in this synthesis report display all of the sign information collected from the various sources described above. The exhibits are organized into Regulatory, Warning, and Other categories. (The "Other" category includes Guide signs, Motorist Information signs, and General Information signs.) Within each category, signs are grouped by function according to MUTCD/SHS sign series, such as R3, W11, etc., with further subdivisions according to specific sign applications (lane use, jug handles, lane ends, ramp metering, etc.). Graphics from the States' documents are included to illustrate each sign design, where available, and the State or city/county sign number is provided in most cases.

In some cases, the only available information from a State was a numeric or alphabetical listing of their signs, such as from their "sign catalog". Typically such listings were organized by sign category (regulatory, warning, guide, construction, etc.) and for each sign the legend, size, shape, and sometimes color were provided. In these cases, no graphic illustration is available, but the exhibits indicate the sign legend and/or a description of the symbol as appropriate.

It should be noted that many jurisdictions use a sign numbering system paralleling that of the MUTCD and SHS. However, in some cases there is a lack of consistency for numbering of special signs developed by State or local agencies. For example, some States designate signs warning of "Ramp Metered When Flashing" as being in the W3 series, but other States number the same signs in a "miscellaneous" category such as W19 or W40. For the purposes of this synthesis, all signs intended to convey a similar message have been placed in the same category in the exhibits, regardless of which sign series number a State may have assigned.

Finally, it must be recognized that the information gathered and presented in this synthesis represents a "snapshot" of special sign usage as of 2004-2005. The State and local agencies are constantly updating their sign policies and standards and will likely continue to do so as new needs develop and as they share information from their neighbor States.

4. Discussion and Recommendations:

A. General:

From the collected information, it is clear that a considerable number and variety of non-MUTCD signs are in routine use by State and local highway agencies in the U.S. In many cases, jurisdictions have used the flexibility given to them by the MUTCD to develop and install special word message signs to communicate unique traffic regulations or warnings of conditions that are not specifically covered in the MUTCD. In some cases the same word message is used by most or all States to describe a particular condition. However, more often there is considerable variety among the specific words or phrases that individual States have chosen to attempt to communicate the same basic information to road users.

The MUTCD specifically limits the use of symbols to those included in the MUTCD, but in some cases, agencies have developed and used unique symbols, alone or in combination with words, to convey a message not contemplated by the MUTCD. Some of the symbols are new applications of an existing approved symbol (such as the recreational and cultural area “hiking trail” symbol displayed in black on a diamond-shaped yellow background to warn of a hiking trail crossing the road.) Some symbols emulate standard symbols used in Canada or Europe, and some symbols are totally new and unique to a given State.

B. New Symbol Signs:

It is important to note that standard Canadian MUTCD signs, especially symbolic signs in longstanding use in Canada, have been given special consideration in formulating the recommendations in this synthesis. Canada has moved considerably farther into symbolization of common regulatory, warning, and guide/information messages (sometimes by adopting European symbols) than has the U.S. Presumably this is because of the dual language considerations (English and French) of Canadian road users and the desire to avoid dual language signing wherever possible. Canada also has a large number of immigrants from all over the world whose primary language is not English. Symbols contained in the Canadian MUTCD generally have been well researched as to effectiveness in that country. Canada has also enhanced road user understanding by the use of temporary educational plaques when new symbols were originally introduced.

When there is a well-designed Canadian symbol with an intuitively obvious meaning for a sign message that some or many States are using a non-MUTCD word message sign (often with many variations among States), strong consideration should be given to adopting the Canadian symbol or a close likeness into the U.S. standards, with a temporary educational plaque as needed. Increasing the uniformity or harmony with Canadian signing designs will serve U.S. interests very well. Improved North American harmony of traffic control devices will increase the efficiency of communicating traffic control messages to the many millions of Canadian residents (regardless of language) who drive in the U.S., and the even larger number of Americans who drive in Canada. Further, with increasing globalization of commerce and travel, the number of foreign visitors to the U.S. from all over the world and vice versa is expanding exponentially.

Increased symbolization of traffic control messages in the U.S. will greatly enhance the convenience and safety of international travelers when they are driving or walking. The exhibits illustrate a significant number of traffic control messages for which one or more States or cities have developed a non-MUTCD symbol. This further supports the need for the U.S. to move toward developing appropriate standard symbols for as many existing word messages as possible. This report recommends immediate consideration of some new symbols where they have been in fairly consistent use or, as stated previously, where they are well-designed Canadian symbols. In other cases, this report recommends research to develop new appropriate symbols for future consideration. As was done with the 1971 MUTCD's introduction of many new symbols, it is recommended that temporary educational plaques be used (only for the first several years) to familiarize road users with the meanings of any new non-intuitive symbols.

C. Detailed Discussion and Recommendations:

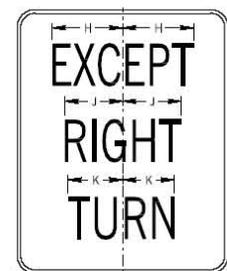
The following discussion, organized by specific sign type, summarizes the sign information collected and what that information suggests (recommendations) in terms of signs that have the greatest potential for consideration of changes in the MUTCD. The exhibits in which the pertinent collected information may be found are indicated for each. Upon reviewing the exhibits, the National Committee on Uniform Traffic Control Devices (NCUTCD) and the Federal Highway Administration (FHWA) may find additional signs, beyond those discussed below, that also warrant consideration for the MUTCD.

Regulatory Signs

R1 – Stop and Yield Sign Related Messages [Exhibits A-1, A-2]:

Except Right Turn: Some relatively rare locations have traffic volumes that dictate that the right turn movement be “uncontrolled” (free flow), even though the Stop sign controlled approach lacks a separately channelized right turn “slot”. The free flow right turn is enabled by right of way controls established on the other conflicting intersection legs. Without a porkchop island to separately channelize the right turn, the Stop sign governs the entire approach and thus legally requires right turning vehicles to stop. If the jurisdiction's engineering study leads to a decision to establish a legal traffic regulation exempting right turns from the control of the Stop sign, then a regulatory sign message is necessary to implement the regulation. At least 12 States have developed 7 different sign messages for this purpose, one of which is also in the sign supplier's catalog. The simplest, most literal legend (which also has the fewest words to read) is “Except Right Turn”.

Recommendation: Add the “Except Right Turn” sign to the MUTCD with the provision that it may be used as a supplement to a Stop sign but only for special combinations of geometry and traffic volumes as determined by an engineering study.



Ground-mounted and Overhead Versions of R1-6 and R1-6a Signs: At least 14 States use ground-mounted or overhead versions of the small, narrow, in-roadway signs R1-6 and R1-6a (“State Law – Stop for Pedestrians Within Crosswalk” or “State Law – Yield to Pedestrians Within Crosswalk”).



Typically these signs are used to remind drivers of the law on a generalized basis where a rural road enters an urbanized area, or at specific intersection crosswalks where in-roadway signs are not desired. The word messages, symbols, colors, and shapes of the signs used by the 14 States for this purpose vary considerably in detail. Recommendation: Add uniform designs of the R1-6 and R1-6a messages (words and symbols) in sizes and formats (vertical and horizontal rectangles) appropriate for ground-mounted and overhead installations.

Stop Here for Pedestrians: The MUTCD currently provides signs R1-5 and R1-5a with legend “Yield Here to Pedestrians” for use with a yield line 20’ to 50’ in advance of midblock uncontrolled crosswalks. However, in some States the law requires drivers to stop, rather than yield, for pedestrians, thus the R1-5 or R1-5a signs cannot be used. Oregon DOT has developed a sign design similar to the R1-5 but with the words “Stop Here for” rather than “Yield Here to”. Recommendation: Add a sign similar to the Oregon design to the MUTCD for use where the State law requires a full stop for pedestrians.



Left (Right) Turn Yield to (Stop for) Peds (Bikes): MUTCD sign R10-15 “Turning Traffic Must Yield to Pedestrians” reminds turning drivers to yield to pedestrians when turning. Oregon has developed signs that provide more specific information, stating “Left (or Right) Turn Yield to Peds”. A similar sign design states “Left (or Right) Turn Yield to Peds & Bikes”. A third sign states “Right Turn Yield to Peds on Green” and includes a symbolic green ball (similar to the R10-12 sign.) New York City uses signs with symbols to convey the regulatory message and include a black on yellow panel at the top to direct the message specifically to left or right turning vehicles. The New York City designs reduce the number of words, give a more precise symbolized message, and would be more conspicuous to drivers. Recommendation: Delete the R10-15 sign and add signs along the lines of the New York City designs, with alternative versions featuring both pedestrian and bicycle symbols. Alternative designs using the words “Stop for” rather than “(yield symbol) To” should also be included, for use in States where that is the basic pedestrian right of way law.



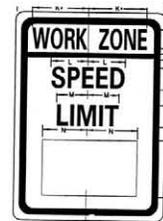
R2 - Speed Limit Related [Exhibits A-3, A-4, A-5]:

Areawide Speed Limits: In urban areas, it is often considered unnecessary and overly costly to install a speed limit sign on every minor residential street, particularly in typical suburban neighborhoods that may have only a very few access points into and out of the neighborhood to arterial streets with higher speed limits. In such cases, some

jurisdictions have a policy to install a speed limit sign only on the streets that enter the neighborhood from the higher speed arterial, and to include an indication on that speed limit sign that it applies “unless otherwise posted” to the entire neighborhood or subdivision. A similar approach is taken by some cities, posting a “citywide” speed limit sign on each road as it enters the city and thereby reducing the number of speed limit signs posted on individual roads and streets within the city. At least 4 States have standard signs for this purpose. The MUTCD should acknowledge and facilitate this cost-saving practice. Recommendation: Add four plaques for use with R2-1 speed limit signs: “Neighborhood”, Residential”, and “Citywide” (to go above the R2-1), and “Unless Otherwise Posted” (to go below the R2-1).



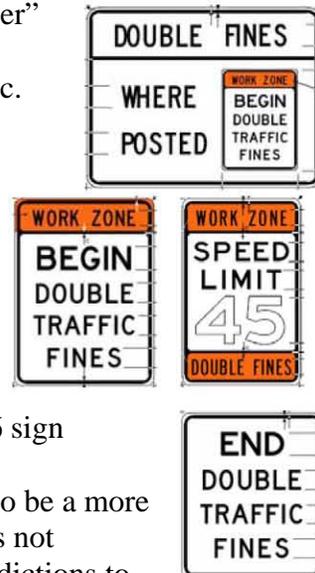
Work Zone Speed Limit: The addition of a black-on-orange “Work Zone” plaque above a standard R2-1 speed limit sign is in very common use by a large number of States to emphasize that a reduced speed limit is in effect due to the work zone. (Only two examples of this are shown in the exhibits, but many other States show similar plaques in their work zone signing details.) Recommendation: Standardize this accepted practice for work zone speed limit signs by adding a black-on-orange “Work Zone” plaque for this purpose in Part 6.



Speed Enforcement Signs: A variety of messages are being used by at least 16 States and many cities to indicate that a speed limit is enforced by radar, aircraft, or other detection devices. In some cases a separate sign is used, while in other cases a “Radar Enforced” or similar plaque is added to the speed limit sign. Recommendation: Add two plaques for use with R2-1 signs to indicate enforcement methods. Uniform messages for the plaques should be “Enforced By Aircraft” and “Radar Enforced”.



Double Fines: MUTCD sign R2-6 indicates “Fines Higher” as a generic message for use where higher than normal fines are established in certain areas, such as work zones, school zones, etc. Review of the States’ signing documents reveals that, almost exclusively, double fines are what are being used in such special zones. However, the way that message is communicated varies. Both “Fine” and “Fines” and “Double” and “Doubled” are used, and the order of words varies from “Double Fines” to “Fines Doubled” or similar. Also, some States use signs to specifically indicate the starting and ending points of the double fine zone, which may not be the same as boundaries between different speed limits. Recommendations: 1) The R2-6 sign should be revised to state “Fines Doubled”, in recognition of the predominant practice of indicating double fines. This would also be a more specific and meaningful message for drivers, since “higher” does not indicate how much higher. The MUTCD text should allow jurisdictions to



use a different text if their law so dictates. 2) Add regulatory signs for both “Begin Double Fine Zone” and “End Double Fine Zone”, for use in work zones, school zones, or any other established zone.

R3 – Turn Prohibitions and Lane Use [Exhibits A-6 to A-9]:

Symbolic Straight Thru Movement Prohibition: Although only one example of use was documented, anecdotal evidence indicates the symbolic “No Thru Movement” sign is in wider use, particularly in cities and counties, often for traffic restrictions associated with traffic calming programs. The sign is useful at four-legged intersections where the thru movement to be prohibited is onto a street or road that does not have a “Do Not Enter” condition, such as when 90-degree turns into the roadway are allowed, but the straight ahead movement into the roadway is prohibited. This is a standard sign in the Canadian MUTCD (RB-10). Recommendation: Add a sign similar to the existing R3-1 but with an up arrow.



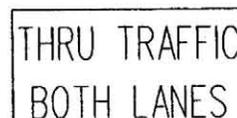
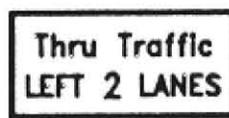
Symbolic No Turns Sign: The Canadian province of Ontario uses a symbolic sign (Rb-15) to communicate “No Turns” at an intersection. The sign features the standard red circle and prohibitive slash superimposed over a two-headed (left and right) arrow with a single shaft, symbolically indicating that neither left nor right turns are allowed. Recommendation: Replace the existing R3-3 word message sign with the Ontario symbol for No Turns, with a temporary educational plaque if needed.



R3-5, R3-6, and R3-8 Lane Use Signs for U-Turns: At least 7 States are using varieties of mandatory movement and/or optional movement lane use signs that include separate U-turn or combined U and Left turn arrows. At least 4 other States use word message signs such as “U-Turn OK” or “U-Turn Permitted”. Many States’ laws treat a u-turn movement as automatically being allowed if the left turn movement is allowed, unless the u-turn is specifically prohibited. However, in some States u-turns are allowed only where specifically signed. Also, in some cases, it has been found helpful for traffic operations to explicitly indicate a u-turn movement on R3-5, R3-6, or R3-8 series arrow-design signs, either alone (separate lane for u-turn) or in combination with a left turn movement. Recommendation: Add signs to the R3-5, R3-6, and R3-8 series, featuring separate u-turn arrows and combined u-and-left arrows.



Lane Use for Thru Traffic: Regulatory signs are being used by at least 14 States to indicate which lane or lanes are to be used by “thru traffic”. The messages include “Thru Traffic Keep Left (or Right)”, “Thru Traffic Both Lanes”, “Thru Traffic Stay Left (or Right)”, or “Thru Traffic Use Left (or Right or Left 2, etc.) Lane(s)”. These signs typically supplement other regulatory and/or warning signs, to provide additional information to road users and to



make the lane usage enforceable where warning signs alone have proven ineffective. Some States' signs use the spelling "through", while most use the abbreviated and easier to read "thru". The most common design is a vertical rectangle, although some States also use a horizontal rectangle. Recommendation: Add standardized designs for these types of sign messages.

Right Lane Must Exit: At least 12 States use a variation of the R3-7 "Right Lane Must Turn Right" sign for freeway lane drop situations, to establish the "must exit" regulation and make it enforceable, where warning signs alone have proven ineffective. (The overhead "Exit Only" plaque on guide signs is yellow and is a warning message). "Right (or Left) Lane Must Exit" is the most common message, although "Right Lane Exit Only" is also used. Recommendation: Add a regulatory sign for "Right (or Left) Lane Must Exit" for freeway/expressway use in lane drop situations.



Left (or Right) Turn Only/All Traffic Must Turn: In cases where all traffic on the approach to an intersection is required to turn (by geometry or by regulation), at least 18 States use "Left (or Right) Turn Only" and/or "All Traffic Must Turn Left (or Right)" signs (or similar) to establish the regulation or supplement other regulatory signs such as "One Way" where extra emphasis is needed. The Canadian province of Ontario uses symbolic signs for this purpose, featuring the red circle and slash to prohibit thru/left or thru/right movements.



Recommendations: 1) Add the Ontario symbols for combined No Thru or Right and combined No Thru or Left, for optional supplemental use at an intersection with Stop or Yield signs; 2) Add "Right Turn Only" and "Left Turn Only" word message signs for optional supplemental use at an intersection with Stop or Yield signs where symbolic signs would not be appropriate; and 3) Add "All Traffic Must Turn Right (or Left)" signs for optional use as an advance sign on the approach to the intersection.



Form X Lanes: At least 10 States use a regulatory sign on the approach to particular roadway sections to require road users to form 2 lanes, where the number of lanes may not be readily apparent, or to require traffic to keep in a single lane in road segments where the combination of lane width and heavy traffic volume makes it tempting for vehicles to operate two abreast in the single available lane. Eight States use the action word "Form", while "Keep" or "Use" is also used. Five States use the word "lines", while the other five use the word "lanes". Most spell out the word "two" or "one" or "single", while two States use the numeral "2". Recommendation: Add a sign with the uniform legend "Form X (numeral) Lanes" for use in the stated conditions.



Regulatory BEGIN and END Plaques: Black on white regulatory plaques stating "Begin" and/or "End" are being used by at least 10 States to indicate the starting and ending points of certain traffic regulations. The most common use is with the R3-9b

2-way left turn lane regulatory lane use sign, although it is also used with other regulations that have beginning and ending points along a roadway rather than being point-specific. There is an existing black on white M4-6 “End” plaque for use with route marker signs, but no comparable “Begin” plaque. Recommendation: Add regulatory “Begin” and “End” plaques for use with 2-Way Left Turn Lane signs or other regulations that are not point-specific.



Static Sign for “Do Not Use Lane”: Maine uses a static sign in certain situations over roadway lanes that are never to be used in the direction of travel viewing the sign.

The sign features a large red X, mimicking the red X of reversible lane signals and similar to that used on the R3-9d static sign for reversible lanes. Maine uses the red X sign in an overhead location, along with overhead R3-5 and R3-6 individual lane use signs, in certain segments of roads with center two-way left turn lanes or side-by-side opposing left turn lanes. The red X indicates that, in a



particular block or segment, the lane is designated as a one-way left turn lane in the oncoming direction, therefore traffic viewing the red X sign is not to use that lane. The Illinois Tollway Authority also uses a static sign with a red X to designate a lane that is always closed to traffic in the direction approaching the sign. The City of Los Angeles has applied the red X sign design to reversible lane systems in which the operational scheme calls for a red X lane control signal to be continuously displayed over a particular lane (for example, over a non-reversed lane immediately adjacent to a reversible lane.) Using a static sign instead of a continuously illuminated red X lane control signal is more economical and serves the same purpose. Los Angeles also uses a static sign with a downward pointing green arrow in reversible lane systems for the same reasons. Recommendation: Add static signs with large red X and large downward pointing green arrow for optional uses as described.



Regulatory Signs for Jug Handles: Jug handles, pioneered and in longstanding use in New Jersey, have been implemented in other States as well (including at least NV, PA, CT, MA, and VT). Jug handles are likely to see increasing use in the future in more States, to improve intersection safety and operations. Regulatory signing for jug handles is critical because the geometry typically requires left turns and u-turns to be made via a right turn, either in advance of or beyond the intersection, and this is contrary to normal driver expectations. In addition to standard R3-2 (No Left Turn) and R3-4 (No U-Turn) or R3-18 (combined No Left or U Turn) signs, regulatory signs are necessary to direct road users intending to make a left or u-turn to the proper lane in advance of where they will need to make a turn to the right. Through decades of experience, New Jersey has developed a series of regulatory signs for this purpose, and other States with jug handles are using similar sign messages. Recommendation: Add advance signs and signs for the jug handle entry point for several of the most common geometric layouts of jug handles (before intersection, after intersection, with or without side road, etc.), using the NJ designs. This should include “All Turns Next Right”, “U and Left Turns Next Right”, “All Turns from Right Lane”, “All Turns” with directional arrow, and variations (with figures to illustrate placement.) (Note: Recommendations for guide signs associated with jug handles are found in the Other Signs section of this report.)



R4 – Passing, Slow Moving Traffic, Keep Right, etc. [Exhibits A-11, A-12]:

Do Not Pass When Solid Line Is On Your Side: At least 5 States use signs to remind road users of the meaning of a solid yellow line for no-passing zones. In some cases, these signs are used to post the specific regulation, rather than relying only on pavement markings as a regulatory measure. There is considerable variety among the 5 signs in the words used (“No Passing” vs. “Do Not Pass” vs. “Unlawful to Pass”; “Solid Yellow Line” vs. “Solid Line”; and “Right of Center Line” vs. “In Your Lane” vs. “On Your Side”.) “Do Not Pass” is preferable because the same terminology used in the R4-1 sign. “Solid Line” is preferable because it is fewer words and all centerlines are yellow so it is not necessary to state that the line is solid yellow. “On Your Side” is simpler and easier to understand than “right of centerline” or “in your lane”. Recommendations: 1) Add a sign with the standardized message of “Do Not Pass When Solid Line Is On Your Side” for optional use for the stated purpose; 2) Evaluate the Canadian No Passing symbol sign (RB-31), which is similar to European and worldwide symbols, for possible future replacement of the R4-1 Do Not Pass word message sign.



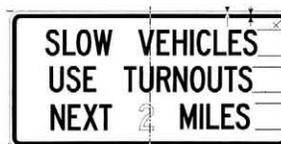
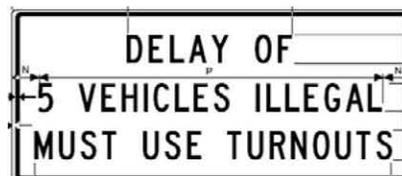
No Driving/Passing on Shoulder: A regulatory sign is being used by at least 19 States to prohibit driving, turning, and/or passing on shoulders. (In the New England states the shoulder is called the “breakdown lane”.) “Do Not Drive (or Pass) on” is used on the majority of these States’ signs, while some use “No Driving (or Passing) on”. Both variations appear similar in legibility, but the “Do Not” variety is more in line with the terminology of other signs such as the R4-1. Recommendation: Add signs with the legends “Do Not Drive on Shoulder” and “Do Not Pass on Shoulder”.



Keep Right Except to Pass: At least 19 States use a “Keep Right Except to Pass” sign to legally require vehicles to stay in the right lane except when passing a slower vehicle (or to remind drivers of such a general provision in the State’s motor vehicle laws.) Three additional States use variations to convey the same type of regulation (for example, Texas uses a “Left Lane for Passing Only” legend.) Several other States use the R4-3 (“Slower Traffic Keep Right”) sign or a variation thereof stating “Slow Vehicles Keep Right” with passing, climbing, and truck lanes. The Canadian MUTCD includes both the R4-3 equivalent (RB-35) and the “Keep Right Except to Pass” (RB-34) signs. Recommendations: 1) Add the “Keep Right Except to Pass” sign to the R4 series; 2) Delete the R4-6 “Truck Lane XXX Feet” sign and add a sign in Chapter 2D with a comparable legend in guide sign colors and format. (Note: Exhibit C-2 shows that several States use black-on-white regulatory signs to denote the distance to the next passing lane, etc., however these signs are used in a manner more appropriate for white-on-green guide signs. Recommendations for such guide signs are found in the Other Signs section of this report.)



Signs for Slow Vehicle Turnouts: At least 8 States, mostly in the west, use regulatory signs to legally require slow moving vehicles to use physical “turnouts” that are provided at intervals along a segment of 2-lane undivided highway so as to avoid impeding other traffic. Most of the 8 States use similar wording on their signs, but there are some variations. Recommendation: Add signs with uniform wording of “Slow Vehicles with X or More Following Vehicles Must Use Turn-Out”, “Slow Vehicles Must Use Turn-Out X Mile (or Ahead)”, and “Slow Vehicles Must Turn Out (w/arrow).” (Note: Guide signing for slow vehicle turnouts is also recommended in the Other Signs section of this report.)

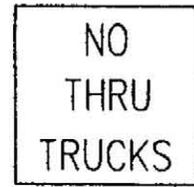


Narrow Version of R4-7 Keep Right Symbol Sign: Two States (VA and MD) have developed and routinely use a narrower version of the R4-7 sign specifically for narrow median noses where there is insufficient lateral clearance for a standard width sign. Recommendation: Add this narrower design for use only on narrow median noses.



R5 – Exclusion Signs [Exhibit A-13]:

No Thru Traffic/No Thru Trucks: Many cities and at least 8 States use regulatory “No Thru Traffic” and/or “No Thru Trucks” signs to prohibit the use of a local residential street by thru traffic (or thru trucks). Typically a “thru” vehicle is defined in State law or local ordinance as one that enters the street at one end (where the sign is posted) and proceeds all the way through the residential area or to the end of the street, without an intermediate destination along the way. Thus, use of the street to travel to or from one’s own residence or business, or to visit someone, is allowed. Trucks that use the street to stop and make a local delivery (or do a garbage pickup) before proceeding out to the other end are also allowed. But a truck that uses the street as a convenient cut-thru to save time or avoid congestion, without a legitimate stop along the street, is a violator. Police typically enforce this type of regulation, after receiving resident complaints, by trailing potential offenders through the neighborhood to see if they stop along the way. An alternative signing scheme used by at least 3 States is to add a plaque “Except Local Deliveries” (or similar wording) to the standard R5-2 No Trucks symbol sign. Recommendation: Add signs with the uniform legends “No Thru Traffic” and “No Thru Trucks” and add a plaque with the uniform legend “Except Local Deliveries”, for uses as described.



No Snowmobiles Symbol: At least 3 States and numerous cities are using a symbolic sign to prohibit the operation of snowmobiles on certain roadways. The symbol is the same as standard snowmobile symbol of the W11-6 warning sign but with the prohibitory red circle and slash. The Canadian MUTCD contains a similar symbol sign (snowmobile without rider) as a standard (RB-65). Recommendation: Add a regulatory “No Snowmobiles” symbol sign.



R6 – One Way [Exhibit A-14]:

Begin and End One Way: At least 7 States are using regulatory signs to denote the start and end points of One-Way traffic regulations along a street or road. Typically the regulatory signs for “End One Way” are in addition to the standard W6-3 signs warning of two-way traffic ahead. The regulatory signs are useful to legally establish the regulation and they can help to indicate to road users the specific points where the one-way operation begins and ends. Recommendation: Add regulatory “Begin One Way” and “End One Way” signs for optional use as described. (Note: a warning sign to give advance warning of a change from two-way to one-way operation of a road is also recommended in the Warning Signs section of this report.)

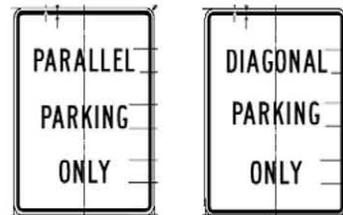


R7, R8 – Parking Regulations [Exhibit A-14, A-15]:

Midblock Parking Pay Station: The cities of Savannah (GA), Portland (OR), Chicago (IL), New York City (NY), and Baltimore (MD) are among a growing number of cities and towns that are replacing individual parking space meters with a “pay and display” system featuring mid-block “pay stations.” After parking in a vacant on-street space, payment is made at the mid-block pay station and the receipt (showing expiration time) is then displayed on the vehicle’s dashboard. (Alternatively, spaces are numbered and the parker enters the space number when paying. Enforcement officers then use electronic information to know which spaces’ paid times have expired.) This system has been in extensive use in Europe for many years. Most of the cities mentioned (as well as many others) are using an identical symbol, very similar to a standard European symbol, on signs indicating the maximum time limit parking is allowed. The symbol features a hand holding a coin in a gesture of dropping the coin into a slot, symbolizing that coin payment is required, the parking time limit (30 minutes, 2 hours, etc.), and a down arrow identifying the location of the pay station. With the growing popularity of this parking payment system, it is desirable to have a uniform symbol sign recognizable everywhere the system is used. The symbol has worked well in Europe and in cities where it has been used so far in the U.S. Recommendation: Add a symbolic midblock parking pay station sign per the Savannah, Portland, and Baltimore designs.



Parallel/Diagonal Parking Only: Many cities and at least 11 States are using regulatory parking signs to require that only parallel or only diagonal parking is allowed along a given segment of road. Most use the phrase “Parallel (or Diagonal) Parking Only”, while some use the phrase “Park Parallel (or Diagonal)”. Recommendation: Add signs with the uniform legends “Parallel Parking Only” and “Diagonal Parking Only” to the R7 series for use as appropriate, typically with arrows.

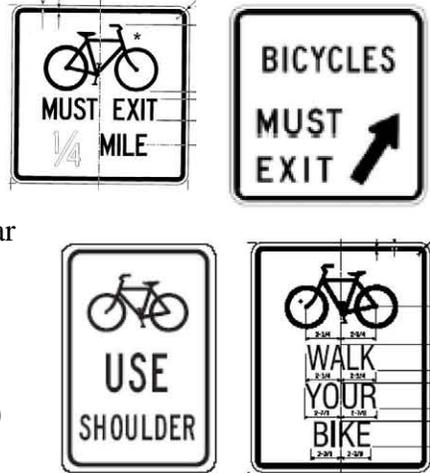


R9 – Signs for Pedestrians or Bicyclists [Exhibit A-16]:

Pedestrians (with horizontal arrow): At least 3 States use a regulatory sign to direct pedestrians to follow a particular route diverting from the normal trajectory, due to a sidewalk closure, a prohibited pedestrian crossing, or other reasons. The 3 States each use a black-on-white horizontal rectangular sign with the word “Pedestrians” above a horizontal arrow, although a more appropriate message for a regulatory sign would be “All Pedestrians”. Recommendation: Add a regulatory “All Pedestrians” sign (with horizontal arrow) for use where needed to establish an enforceable regulation and supplement guide signs for pedestrians.

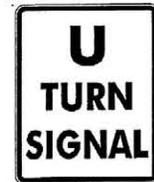


Bikes Must Exit, Bikes Must Use Shoulder, Walk Your Bike: At least 11 States have developed and use special regulatory signs to direct bicyclists in certain conditions. In some cases, bicyclists must exit from a roadway where it changes to a limited access facility or where conditions are not conducive to bike travel (such as approaching a roundabout.) In other cases, bicyclists must be directed to use the shoulder (and not ride in the vehicular travel lane) or to dismount and walk their bikes in a certain area. Uniform regulatory signs are needed for these purposes. Recommendation: Add the followings signs: “(bike symbol) Must Exit X/X Mile”, “(bike symbol) Must Exit (w/diagonal arrow)”, “(bike symbol) Use Shoulder”, and “(bike symbol) Walk Your Bike”.



R10 -- Traffic Signal Signs [Exhibits, A-17, A-18, A-19]:

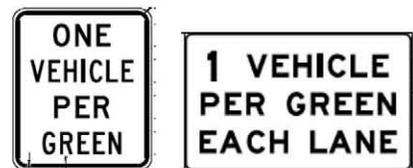
U-Turn Signal: Part 4 of the MUTCD requires that a separate signal face for a protected-only mode left turn must be accompanied by an R10-10L “Left Turn Signal” sign if the signal face uses a red ball rather than a red arrow. At certain locations, left turns are prohibited or not geometrically possible but U-turns are allowed and controlled with a separate protected-only mode signal phase. To properly communicate that the separate signal face only applies to U-turners, at least 2 States have developed signs similar to the R10-10L “Left Turn Signal” sign but with the legend “U-Turn Signal”. Recommendation: Add a “U Turn Signal” sign to the R10 series for this specific use only.



Lane-Specific No Turn on Red: At signalized intersection approaches with more than one right turn lane, it is common practice to prohibit turns on red from all but the right-most right turn lane, due to sight distance or other operational constraints. In these circumstances, a lane-specific No Turn on Red regulation is more efficient than a total prohibition of turns on red from the entire approach. At least 5 States are using overhead and ground-mounted signs with a variety of legends to indicate this type of prohibition. In some cases, “permissive” style text such as “Right Turn on Red from Right Lane Only” is being used, while in other cases “prohibitory” style text such as “No Turn on Red from Left Lane” is used. The prohibitory style is more appropriate, because the laws of all 50 States allow turns on red after stop at all locations except where it is specifically prohibited by a sign. Recommendation: Add a sign with uniform legend of “No Turn on Red From Left (or Center, or Other) Lane” for ground-mounted use, and add a sign with uniform legend of “No Turn on Red from This Lane (with down arrow)” for overhead mounting.



Ramp Metering Signs: Ramp metering signals are used in several States but, since there are no standard signs for this in the MUTCD, the States have developed a variety of their own designs to establish regulations on how many vehicles may proceed on



each (short) display of green. Recommendation: Add signs for ramp metering, with the uniform legends of “X Vehicle(s) Per Green” (for one lane metering) and “X Vehicle(s) Per Green Each Lane” (for multilane metering.)

Push Button for Warning Lights: An increasing number of midblock pedestrian crossing locations are being equipped with pedestrian-activated flashing beacons (accompanying warning signs for approaching vehicles) or with flashing in-roadway lights. Because passive detection systems for pedestrians have not yet become totally reliable, push buttons are still being used by most jurisdictions to enable pedestrians to activate the warning beacons or in-roadway lights. For these applications, at least 4 States have developed signs with a variety of legends that are mounted with the push button (similar to the R10-4 “Push Button for Walk Signal” sign.) Recommendations: 1) Add a sign with a uniform legend of “Push Button To Turn On Warning Lights” for the stated purpose. (“Turn On” is simpler, less technical language than “Activate”); and 2) Evaluate the Canadian symbol for pedestrian push button (ID-21) for possible future replacement of word messages on R10-3, R10-3a, R10-4, R10-4a, and R10-4b signs.



Bicycle Push Button Signs: California and Oregon are using signs to accompany push buttons that enable bicyclists to actuate a separate bike signal phase or a parallel vehicular green phase at a signalized crossing.

These signs are typically used with push buttons intended exclusively for bicyclists. Bikes need less time to cross than pedestrians, so the push buttons actuate timing specifically appropriate for bikes, an operationally efficient strategy. Recommendation: Add standardized signs for this purpose to the R10 series, with the legends “(bike symbol) Push Button for Green Light” and “(bike symbol) Push Bike Signal”.



Button for

Photo Red Light Enforcement Signs: The existing R10-19 sign is a word message sign with the legend “Photo Enforced”. The meaning of this sign is obvious when it is used with a speed limit sign or with some other regulatory sign, to indicate that the regulation is photo enforced. However, for jurisdictions using photo enforcement of red signal violations, there is usually a need to provide a sign in advance of the signalized intersection to inform road users of the photo enforcement of the signal ahead. However, many intersections have no need for a Signal Ahead warning sign, so the R10-19 sign would have to be posted alone. In that type of use, it is not clear what regulation is being photo enforced, so at least 4 States and many cities have developed regulatory signs that specifically identify red light photo enforcement. The majority include the standard traffic signal symbol (from the W3-3 warning sign) and a specific legend “Red Light Photo Enforced.” The Canadian MUTCD takes a different approach, prescribing a single uniform symbol sign (ID-33) for

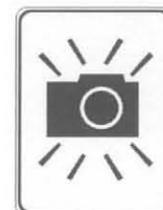
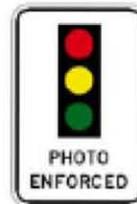


photo enforcement of all types (symbolized by a camera), with a supplemental plaque to indicate whether it is red light, speed, or restricted lane regulations that are being photo enforced. Recommendation: Add a new symbol sign to indicate photo enforcement of a traffic signal. The sign should use the Canadian MUTCD camera symbol for photo enforcement plus the standard symbol for a traffic signal (from the W3-3 Signal Ahead symbol), incorporated into a single rectangular regulatory sign. An educational plaque (“Red Light Photo Enforced”) should be added for use if necessary. (The existing R10-19 would continue to be used as a supplement to other regulatory signs or as a plaque with a W3-3 Signal Ahead sign.)

R14 – Truck Regulations [Exhibits A-20, A-21]:

Engine Brake Prohibition: Many dump trucks and other heavy construction vehicles are equipped with “engine brakes” that can be used to reduce the vehicle’s speed without applying the mechanical brakes. These are also known as “Jake Brakes”. When a truck uses its engine brake, very loud noise is produced. Many cities and towns have adopted ordinances prohibiting the use of engine brakes within residential areas or along sections of highways near private homes. At least 19 States and many cities use signs to indicate these prohibitions, but the signs have a variety of legends, ranging from “engine brakes” to “compression brakes” to “brake retarders,” and various ways of stating the prohibition. Signs with standardized legends are needed for this type of prohibition. Recommendation: Add signs with the legends “Trucks---No Engine Braking Next X Mile” and “End Engine Brake Restriction”.

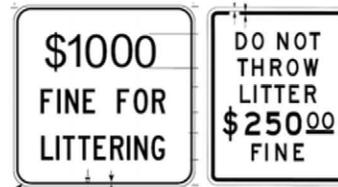


R16 -- Safety Regulations [Exhibits A-22, A-23, A-24]:

Stop for School Bus: At least 22 States use signs to remind road users of the State law requirement to stop for school buses loading or unloading children. The legends used on these signs vary widely. The action messages include “Stop for”, “Stop When”, “Stop While”, and “Unlawful to Pass”. The condition for which a stop is required may be termed “Stopped School Bus”, “School Bus Stops”, “School Bus Loading or Unloading”, and “School Buses Stopped to Load or Unload”. In some States, the stop is required when the school bus “Red Lights Flash”, “Flashing Red Lights”, “Red Lights Flashing”, “Signals Flash Red”, or “Signals Are in Operation”. Recommendation: Add two signs with standardized legends, stating “Stop for Unloading)” and “Stop for School Bus When Red Lights Flashing”.

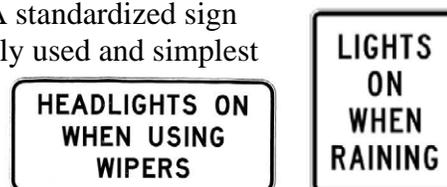


Littering Prohibition: Almost every State uses a regulatory sign to denote prohibitions on littering of the highways. Most of these signs also indicate the statutory fine for littering. There is a wide variety among the States in the design and legends used for these littering prohibition signs. The two most commonly used legends are “\$XXX Fine for Littering (Highway)” and “Do Not Throw Litter---\$XXX Fine”. Recommendation: Add these two signs as the generic littering prohibition signs.

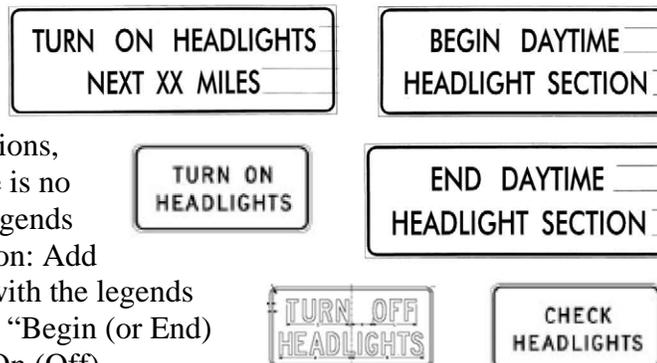


R-XX Other Regulatory Messages [Exhibits A-25, A-26, A-27]:

Lights on When Raining: At least 5 States use regulatory signs with a variety of legends to inform road users of State laws requiring that vehicle headlights be turned on whenever it is raining or, in some cases, whenever windshield wipers are in use. There is a trend for more States to adopt laws of this nature. A standardized sign legend is needed for this purpose. The most commonly used and simplest message is “Lights On When Raining” (or “When Using Wipers”). Recommendation: Add these two signs for use in States where this law has been enacted.



Other Headlight Use Requirements: At least 12 States designate certain sections of highways with a regulatory requirement to use vehicle headlights at all times, usually as a safety improvement measure in high crash frequency sections, but sometimes also in tunnels. There is no uniformity among the States in the legends used for these signs. Recommendation: Add standardized signs for this purpose, with the legends “Turn On Headlights Next X Miles”, “Begin (or End) Daytime Headlight Section”, “Turn On (Off) Headlights”, and “Check Headlights”.



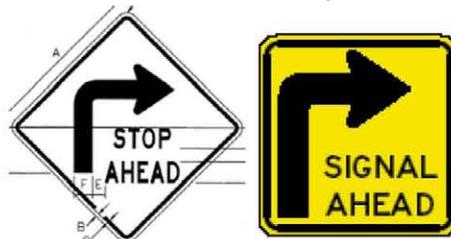
Move Accident Vehicles From Travel Lanes: As an integral part of active incident management programs in many urban areas, an increasing number of States and cities are using signs requiring drivers who have been involved in relatively minor “fender bender” or non-injury crashes to move their vehicles to the shoulder. A variety of sign messages are in use for this purpose, some of which use a symbol depicting a side view of the front bumper of a vehicle bumping into the rear bumper of a vehicle ahead of it. With the increasing popularity of these laws and incident management programs, a standardized sign legend is needed. Recommendation: Add a sign stating “Fender Bender?---Move Vehicles From Travel Lanes”. (Allow the optional use of the fender bender crash symbol for extra emphasis where needed.)



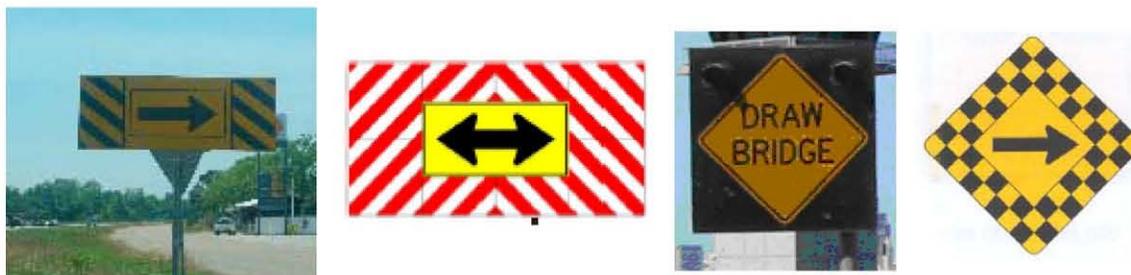
Warning Signs

W1 – Alignment Warning [Exhibits B-1, B-2]:

Combined Turn Warning and Regulation Ahead Warning: Many sections of older freeways have interchange geometry not meeting current design standards. There are very short, sharply curved freeway exit ramps where the ramp terminal is located a very short distance from the exit gore and the terminal intersection controls are not sufficiently visible around the sharp turn in the ramp. In such conditions, it may be impractical to provide two separate warning signs, one for the curvature and another to warn of the traffic control ahead, a sufficient distance in advance of each condition. At least 2 States have developed signs that combine a turn warning and a warning of a regulation ahead (such as Signal Ahead or Stop Ahead) into a single sign, either a vertical rectangle or diamond-shaped. Uniform signs are needed for use only in the situations described. Recommendation: Conduct research and evaluation to develop effective uniform designs for this type of sign, featuring symbols rather than words.



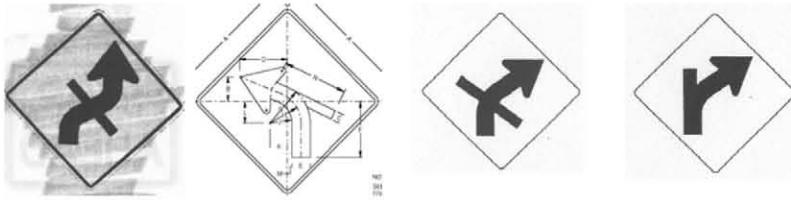
Special Emphasis Backboards on Large Arrow Alignment Signs and Other Warning Signs: At least 4 States use versions of the W1-6 and W1-7 Large Arrow signs that incorporate a diagonally-striped backboard surrounding the Large Arrow sign. In most cases, yellow and black stripes are used, although one State uses red and white stripes. Special backboards are used for extra emphasis where other measures have not proven effective. This type of design is similar to Canadian MUTCD standard designs



that include a black and yellow “checkerboard” patterned backboard (rather than stripes) for extra emphasis. It is also common practice to use backboards to give other warning signs special emphasis under certain limited conditions where drivers need enhanced detection of critical signs. Recommendation: Add an Option to specifically allow standard warning signs to be mounted on a larger warning background for special emphasis in unusual situations. The background should be any of the following: solid yellow, solid black, diagonal yellow and black hazard stripes, or checkerboard patterned yellow and black diamonds. (Red and white stripes are not recommended, as red is not a warning color.)

Combination Horizontal Alignment/Intersection Warning: The MUTCD only includes one example of this type of sign, specifically the W1-10 sign, which shows a side road 90 degrees left within a curve to the right. As allowed by the MUTCD text, a variety of States have developed designs depicting various alternative situations that frequently occur along their highway systems (different combinations, crossroads, intersection angles, etc.) The design details of these signs vary from State to State even

when the same basic message is being communicated. Recommendation: Add uniform designs for the most commonly used depictions of curvature/crossroad and curvature/side road combinations, such as those shown below.



W2 – Crossroad and Side Road Warning [Exhibit B-3]:

Offset and Closely-Spaced Side Roads Warning: Variants of the W2-2 sign depicting offset side roads and/or two closely-spaced side roads on the same side are used in at least 13 States. However, the relative distance between the two side roads and the relative stroke widths of the roadways varies significantly among the State designs. Recommendation: Add uniform designs for versions of the W2-2 that feature offset side roads and two closely spaced side roads on the same side.



W3 Advance Traffic Control Warning [Exhibits B-4 to B-7]:

“NEW” Traffic Controls or Traffic Patterns: At least 15 States and numerous local jurisdictions are using signs to warn of new traffic controls or new traffic patterns. The messages include “New Signal”, “New Signal Pattern”, “New Traffic Pattern”, “Signal Operation Changed”, “Traffic Control Change”, “Traffic Pattern Changed”, “Signal Revision Ahead”, and “Traffic Revision Ahead”. At least 2 States are using a plaque with the word “NEW” above new regulatory signs and above warning signs in advance of a new regulation. The Canadian and Ontario MUTCDs include a standard “NEW” plaque for this use, the design of which features a “sunburst” pattern around the word for emphasis. Recommendations: 1) Add a standard “NEW” plaque (similar to the Canadian MUTCD design) for optional use with any new regulatory sign and/or with an advance warning sign for the new regulation (such as with a Signal Ahead warning sign in advance of a newly-installed signal.) This use of the plaque should be limited to a maximum period of time, such as six months; and 2) Add a sign with the uniform message “New Traffic Pattern Ahead” for optional use to provide advance warning of a change in traffic patterns (new lane usage, geometry, signal phasing, etc.) at an intersection or along a section of roadway.



Ramp Metered Warning: Ramp metering signals are used in several States, usually only for peak-period conditions. During unmetered off-peak hours, the ramp signals are turned off, as allowed by the MUTCD in Chapter 4H. The States have developed a variety of their own designs to provide road users with advance warning of the ramp metering signal and whether or not it is operating at any given time. (There are no standard signs for this in the MUTCD.) The most commonly used wording is “Ramp Metered When Flashing” (accompanied by a flashing beacon which flashes when the meter signal is in operation.) However, some States use different wording, such as “Ramp Meter Ahead” or “Ramp Signal Ahead”. Recommendation: Add a standard sign to warn of ramp metering in operation ahead, with the uniform legend of “Ramp Metered When Flashing”. This sign, when used, should be accompanied by a flashing beacon.



Prepare to Stop When Flashing: A standard MUTCD diamond shaped sign, W3-4, states “Be Prepared to Stop”. This sign is used to give warning of the possibility of encountering a condition ahead that would require a stop (such as congestion backups, a signal that might turn red, etc.) At least 10 States use signs (accompanied by flashing beacons) to warn drivers of the actual need to prepare to stop when the beacons are flashing. Most commonly, this sign is used on a high-speed or crash-prone approach to a signalized intersection.



The beacon operation is tied to the signal controller so that it starts flashing an appropriate number of seconds before the signal changes from green to yellow and it continues flashing throughout the red interval. There is great variety among the States in terms of the specific message used, although “Prepare to Stop” is always used rather than “Be Prepared to Stop”. There is also variety in the design of the sign (diamond shaped versus rectangular). In some States the “Prepare to Stop When Flashing” message is combined with a “Signal Ahead” message on a single sign panel, while in other States separate signs are used. There is also a Canadian MUTCD standard (WB-5 Opt plus WB-5S) for this type of sign. Recommendation: Add two signs with uniform legend of “Prepare to Stop When Flashing” for the purpose described. One sign should be diamond-shaped, for ground-mounted use, and one should be a horizontal rectangle for oversized overhead use.



No Merge Area: In some areas or along certain roadways, the vast majority of channelized right turns at intersections have acceleration lanes to enable a smooth merging maneuver after making the right turn. When there are only a few channelized right turns in those areas that do not have acceleration lanes, those few locations require driver behavior different from their expectations. At least 4 States use warning signs as a supplement to a Yield sign controlling a channelized right turn, to warn road users of the lack of an acceleration lane in an area where drivers would normally expect such a lane to be present. Three of the 4 States use the legend “No Merge Area”, while the fourth uses “No Merge Lane Ahead”. Recommendation: Add a black-on-yellow “No Merge Area” warning sign for supplemental use with a Yield sign under the conditions described.



Right Lane Exit Only (or Must Turn Right) Ahead: At least 5 States use special warning signs to provide advance warning of a freeway lane drop and/or a surface street “trap lane”. These signs supplement regulatory signs (such as “Right Lane Must Exit” or the R3-7 “Right Lane Must Turn Right” sign) but they are located further upstream of the lane drop in order to provide even more advance warning. (See discussion of the regulatory version of this sign in the Regulatory section of this report.) On freeways, they may also supplement “Exit Only” plaques on guide signs. In some cases where overhead guide signs are not present, they give the only advance warning of the lane drop. A variety of sign legends and design layouts are used by the 5 States for these signs. Recommendation: Add signs with the uniform legends “Right Lane Exit Only Ahead” and “Right Lane Turns Right Ahead” for optional advance warning of “trap lane” lane drops on freeways and surface streets, respectively. Designs for ground mounting and overhead mounting should be included.



W4 – Traffic Flow Warning [Exhibits B-8, B-9]:

Thru Traffic Merge Left (Right): At least 11 States routinely use supplemental warning signs approaching lane drops to warn thru traffic (i.e., traffic not exiting at the next interchange) to “merge left” (or right, in the case of a left lane drop) and get out of the “exit only” lane. Recommendation: Add the “Thru Traffic Merge Left” sign for optional use for this purpose, either alone or in addition to a “Right Lane Exit Only” or “Right Lane Turns Right Ahead” warning sign.



Additional Messages for W4-4p “Cross Traffic Does Not Stop”: Various States and local agencies have found it necessary to use alternative legends for the W4-4p plaque under certain geometric and traffic control situations. The alternative legends of “Oncoming Traffic Does Not Stop” and “Traffic From Right (Left) Does Not Stop” are allowed by an Option in the text of Section 2C.50, but they are not illustrated in the MUTCD or SHS. Also, the legend “Traffic on Hwy XX Does Not Stop” may be appropriate in some cases. Recommendation: Add three additional legends of “Oncoming Traffic Does Not Stop”, “Traffic From Right (Left) Does Not Stop”, and “Traffic on Hwy XX Does Not Stop” to the MUTCD and SHS as alternatives to the W4-4p.



W5 – Road or Bridge Narrows [Exhibit B-10]:

Shoulder Narrows, Narrow Shoulder, Lanes Narrow, Narrow Lanes: The MUTCD W5-1 “Road Narrows” sign is used to give advance warning of a narrowing of the road ahead. Some States use signs to give a similar advance warning of a narrowing of the shoulder ahead and/or a narrowing of the lane(s) ahead. Some States also use signs to remind road users of the narrow shoulder and/or narrow lane(s) along the road section

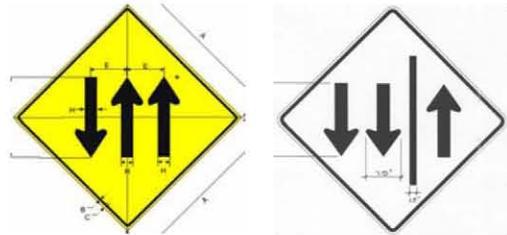
that has those narrow features. At least 12 States and some local agencies use these types of warning sign messages, but there are considerable variations in the actual messages and sign designs. Additionally, at least 4 States and some local agencies use signs to warn of a specific narrow lane width or passage width (horizontal versions of the W12-2 vertical clearance warning sign.) This type of horizontal clearance symbol is similar in concept to the symbols used in Europe and worldwide for this message.

Recommendation: Add uniform signs for “Shoulder Narrows” and “Lanes Narrow” for use in advance of the condition, add “Narrow Lanes” and “Narrow Shoulder” for use along the road sections with the narrowed features, and add “Max. Width XX” (with horizontal arrows)” to warn of actual lane width or passage way width.



W6 – Divided Highway, Two-Way Traffic [Exhibit B-11]:

Two-Way Traffic Warning on 3-Lane Road: At least 3 States are using a variant of the W6-1 two-way traffic symbol for warning of two-way traffic on roads having three thru lanes, with one lane in one direction and two lanes in the other direction. The standard W6-1 symbol shows one up arrow and one down arrow. The three States’ variants show three arrows, symbolically denoting not only two-way traffic but also how many thru lanes in each direction. The Canadian equivalent of the W6-1 symbol includes a vertical broken line separating the up and down arrows, and one State’s 3-arrow variant uses the same concept (but with a solid line) to reinforce the message. Recommendation: Add this type of sign with 3 arrows (2 up/1 down or 1 up/2 down) and with a vertical solid line dividing the directions, for use on 3-lane undivided roads only.



One Way Traffic Ahead: At least 2 States and some local jurisdictions use a warning sign to provide advance warning of a change in a roadway’s flow from two-way to one-way. These warning signs are often used in conjunction with regulatory “Begin One Way” signs (see related recommendation for additional R6 signs in the Regulatory section of this report.) Recommendation: Add a new sign in the W6 series with the legend “One Way Traffic Ahead”.



W8 – Roadway Surface Condition [Exhibits B-13 to B-22]:

Damaged Pavement: Signs with a variety of legends are being used by at least 9 States to warn of damaged pavement ahead. The legends include “Frost Heave(s)”, “Cracks in Road”, “Road Damage”, “Broken Pavement”, “Pavement Ruts”, “Sunken

Grade”, and “Rough Pavement”. Some of these legends may be well understood by highway engineers but their meanings are unlikely to be clear to unfamiliar road users. Recommendation: Add a sign with the single “generic” legend of “Damaged Pavement” for use to warn of damaged pavement ahead (pavement with cracks, ruts, breaks, heaves, etc. or that are unusually rough due to damage.)



Shoulder Drop-Off and Uneven Lanes Warnings: The MUTCD currently contains word message signs for warning of “Low Shoulder”, and “Shoulder Drop-Off”. There is also a word message sign in Part 6 for warning of temporary “Uneven Lanes”. Symbol signs and/or different word messages are being used in at least 13 States to convey these or similar messages. The word messages include “Abrupt Lane Edge”, “Edge Drop-Off”, and “Sharp Drop-Off at Pavement Edge”. The symbols typically show a rear view of a car with the left wheel on higher pavement and the right wheel on a lower pavement surface. The States are not consistent in how these symbol signs are used, with some being used for uneven lanes and some for low shoulder or shoulder drop-off conditions. Nevada uses two different symbols, with the symbol for uneven lanes featuring a rear view of two side-by-side vehicles, one on lower pavement than the other. The Canadian MUTCD prescribes a single standard symbol sign (TC-49) for use to warn of either a low shoulder or uneven lanes. The Canadian symbol shows a car “on the edge” but with both wheels on the higher pavement and the vehicle “leaning” slightly toward the drop-off. Recommendation: Add the Canadian symbol sign to the MUTCD, with supplemental educational word message plaques as needed, for use to warn of either shoulder drop-offs or uneven lanes.



No Shoulder: Signs are used in at least 7 States to warn of the end of a shoulder and/or to provide repeat warnings of the lack of a shoulder along a segment of highway. Legends include “Surface Shoulder Ends”, “Shoulder (or Breakdown Lane) Ends”, and “No Shoulder”. Recommendation: Add a standardized “No Shoulder” sign for this purpose.



Falling or Fallen Rock, Slides, etc.: At least 26 States use signs to warn of the possibility of rocks falling (or already fallen) onto the roadway. The most common sign, used by 15 States (plus the U.S. Forest Service) is the word message “Falling Rock”. Three additional States use either “Watch for Fallen Rock” or “Fallen Rock Zone”, and 5 other States use the word message “Rocks” or “Watch for Rocks”. Four States and the National Park Service use a symbol based on either the standard Canadian or Mexican symbol signs. A large number of States also use word message signs to warn of “Slides” or “Slide Area”, “Earth Slides”, “Rock Slides”, “Landslides”, etc. The Canadian and Mexican symbols are intended to be used to symbolize all these various word messages. Recommendation:

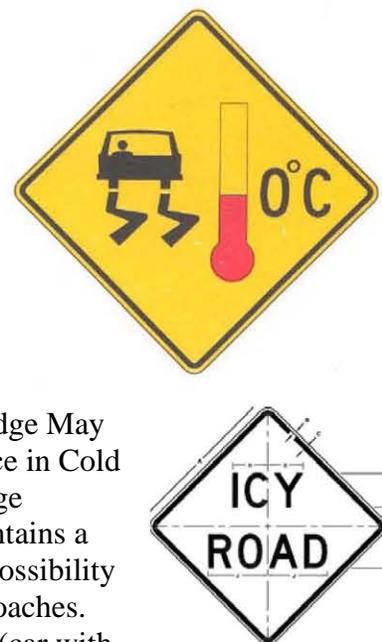


Evaluate the Canadian, Mexican, and other similar symbols for legibility and conspicuity, and add whichever is better to the MUTCD (with an educational plaque “Falling Rocks” if needed.)

Roadway Flooding: A wide variety of sign legends are being used by over 30 States plus the U.S. Forest Service to warn of the possibility of flooding (or water over the roadway) and/or actual flooding of the roadway. Messages used to warn of possible flooding include “Flash Flood Area”, “Flood Area”, “Road May Be Flooded”, “Subject to Flooding”, “Road Subject to Flooding”, “Road Floods”, “Watch for Water on Road”, “Watch for Water Over Road”, “Watch for Water”, “Road Floods During High Tide”, “High Tide May Cover Roadway”, and “Impassable During High Water”. To warn of actual flooding, messages used include “Road (or Street) Flooded”, “Water Over Road”, “Water Over Roadway”, “Water on Road”, “Water on Pavement”, “High Water”, “Flood Water”, and “Running Water”. The simple message that has the most generic applicability to warn of possible flooding is “Road May Be Flooded”, while “Road Flooded” is simplest and most applicable for warning of actual flooding. Additionally, at least 5 States and the U.S. Forest Service are using a sign that functions as a water depth gauge, posted at the point where frequent intermittent roadway flooding occurs. This sign warns of actual water depth over the pavement and is a valuable guide to road users (with differing vehicle underbody clearances) in considering whether or not to proceed. Recommendations: 1) Add the “Road May Be Flooded” and “Road Flooded” signs for uniform optional use in the stated conditions; and 2) Add a water depth gauge sign similar to the Virginia or Texas design for optional use.



Icy Conditions: There are at least 28 States using signs to warn of the possibility of icy road or bridge conditions in cold weather and/or the presence of actual ice on the road. For possible ice conditions, States use sign legends such as “Road May Be Icy”, “May Be Icy Ahead”, “Ice May Be Present”, and “Watch for Ice”. Since bridge decks may have ice forming while adjacent roadway surfaces are just wet, at least 21 States use signs to warn of this possibility, using various legends. While the 2003 MUTCD added a standardized message for this purpose (W8-13 “Bridge Ices Before Road”), other legends still being used include “Bridge May Be Icy”, “Bridge May be Slippery”, “Watch for Ice on Bridge(s)”, “Bridge May Ice in Cold Weather (or In Winter)”, “Bridges Freeze First”, and “Bridge Freezes Before Road Surface”. The Canadian MUTCD contains a standard symbol sign (WC-23) specifically to warn of the possibility of a bridge deck freezing before the adjacent roadway approaches. The symbol is identical to the “slippery when wet” symbol (car with



zig-zag lines denoting skidding) but with a depiction of a mercury-type thermometer alongside it and the legend “0 degrees C” (freezing point). For warning of actual ice on the road, sign legends used include “Icy”, “Icy Road”, “Icy Spots”, “Icy Pavement Zone”, “Ice”, and “Ice on Pavement”. Recommendations: 1) Add a sign similar to the Canadian symbol (but with the thermometer showing “32 degrees F”) for use as a warning of the possibility of icy conditions on roadways or bridge decks (accompanied by an educational plaque if needed); and 2) Add a sign with the uniform legend of “Icy Road” to warn of actual icy conditions.

Grooved and Textured Pavement Warning: Pavement milling as a part of the resurfacing process (or as a skid resistance treatment), longitudinal shoulder and centerline grooved rumble strips, and textured pavement surfaces such as actual or simulated brick are increasingly common on streets and highways. At least 24 States routinely use signs to warn of these conditions, often because of concerns about the potential effects on safe operation of motorcycles and/or bicycles. “Grooved Pavement” is the most commonly used sign legend for warning of grooving for longitudinal grooved rumble strips and for milled surfaces, although some States use a symbol of a motorcycle along with the legend. Both “Milled Pavement” and “Textured Pavement” are also being used as legends, but it is highly unlikely that the general public understands what the engineering technical term “milled” means. The Canadian MUTCD includes a standard symbolic sign (TC-47) to warn of road surface conditions (including milled, grooved, or textured pavements) that require extra care and attention by motorcycle and/or bicycle operators. The symbol shows a rear view of a person on a vehicle that looks like it could be either a motorcycle or a bicycle, riding on a surface that appears to have longitudinal grooves in it.



Recommendation: Add the Canadian symbol sign as the uniform sign to be used to warn of any grooved, milled, or textured surface that requires extra care and attention by motorcyclists, bicyclists, or both. The symbol could be accompanied by educational plaques such as “Grooved Pavement” or “Textured Pavement” if needed.

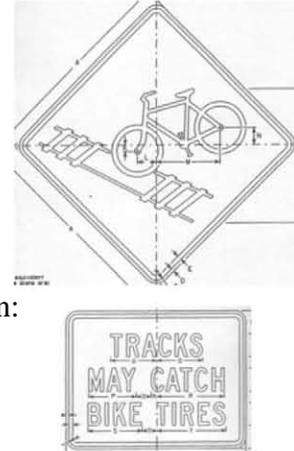
Steel Grid Bridge Deck Warning: Motorcycle and bicycle concerns have prompted at least 12 States to routinely use signs to warn of steel or “grated” bridge decks. Legends used include “Steel Bridge Deck”, “Steel Deck Bridge”, “Steel Grid Deck”, “Grated Bridge Deck”, “Open Grate Bridge”, and “Metal Grate”, in some cases accompanied by a symbol of a motorcycle with rider. The province of British Columbia (BC), Canada, uses a very well designed symbol to convey this message, showing the rear view of a person on a vehicle that looks like both a motorcycle and a bicycle, riding on a perspective view of a gridded surface. A series of lines make the motorcycle/bicycle appear to be “shaking” from the vibrations of the bridge deck. The BC symbol sign is accompanied by an educational plaque stating “Metal Bridge Deck”.



steel grid bridge deck that requires extra care and attention by motorcyclists, bicyclists, or both. The symbol could be accompanied by an educational plaque if needed.

W10 – Railroad Warning [Exhibit B-23]:

Skewed, Uneven, or Rough Crossings for Bikes: Where railroad tracks are crossed by roadways used by bicyclists or by shared-use paths, special problems can exist for bicyclists, particularly at skewed crossings. At least 7 States and numerous local jurisdictions use signs to warn bicyclists of potential hazards at such crossings. In some cases the warning is specific, using symbolic depictions of a bicycle getting its tire caught in a gap alongside a rail and the bicyclist tumbling off the bike. Other States use a general “Bicyclists Use Caution”, “Bicyclist Hazard”, or “Hazardous Tracks” legend accompanied by a symbolic depiction of a railroad track. At least 5 additional States use word message signs to warn all road users of “Uneven Tracks”, “Rough Tracks”, or “Rough Crossing”. Recommendation: Add a symbol sign similar to that used by Wisconsin to warn of conditions at grade crossings that require extra care by bicyclists. The symbol sign could be accompanied by an educational plaque (“Tracks May Catch Bike Tires”) if needed.



W11 – Advance Crossing Warnings – Vehicular [Exhibits B-24 to B-29]:

Trucks Entering: Although the MUTCD contains the standard W11-10 symbolic Truck Crossing warning sign, at least 19 States have found it necessary to develop and use a different sign for certain conditions. When trucks on a side road or construction site do not cross the highway but instead enter the highway by turning right or left, these trucks can pose a potential speed differential safety problem because of their very slow acceleration characteristics. Legends being used to warn approaching road users of this condition include “Trucks Entering”, “Trucks Entering Highway”, “Trucks Entering Roadway”, “Truck Entrance”, “Trucks”, and others. “Trucks Entering Roadway” is the most descriptive and versatile of these messages. The Canadian MUTCD includes a standard symbol sign (WC-8) for warning of truck entrances, “to indicate to drivers that they are approaching a location at which trucks are entering, leaving, or crossing the road and where an unusual maneuver or physical condition such as a steep grade” presents a need for extra caution. The symbol depicts a plan view of a highway with a side view of a dump-style truck approaching the highway (from right or left). Lines behind the truck give an appearance of movement by the truck toward the road. Some jurisdictions in California use a slightly modified and improved version of the Canadian standard symbol in which the plan view of the highway is shown in a perspective view, making it look more like a road than an abstract geometric form. Recommendation: Add the California-modified Canadian MUTCD symbol sign (with an



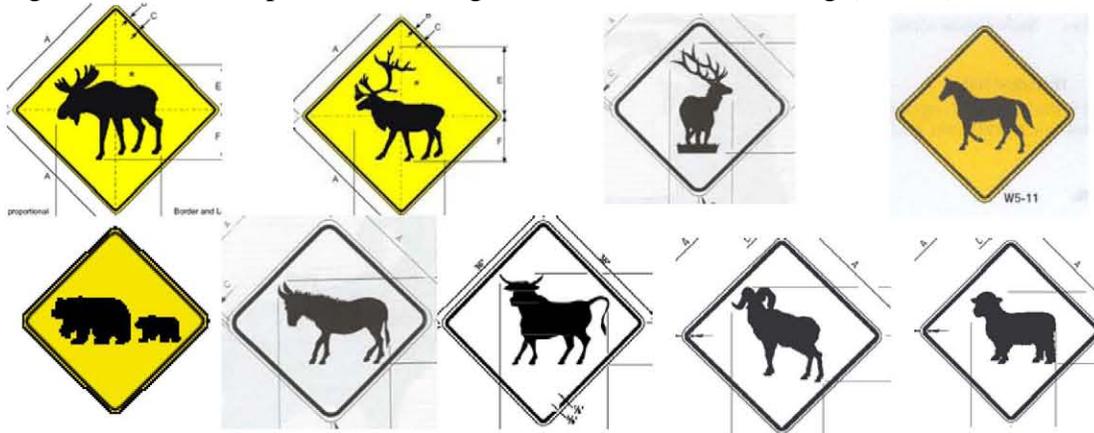
educational plaque if necessary) for optional use to warn of locations where trucks enter but do not cross the highway and special conditions require extra caution by road users.

Stopped or Turning Traffic, Congestion: There is no standard sign in the MUTCD to warn road users of the possibility of vehicles unexpectedly stopped in the travel lane. The stopped vehicles may be left turners waiting for a gap in opposing traffic at a location where there is no left turn storage lane and approaching traffic has insufficient stopping sight distance, or there may be frequent occurrences of queues of traffic at a location where such queues would be unexpected. Some geometric conditions make it necessary for trucks or other large vehicles to decelerate almost to a stop in a high-speed travel lane before making a right or left turn because there is no separate deceleration lane. Over 20 States use signs to warn of the possibility of stopped or almost stopped traffic due to turns or other unexpected conditions. Legends include “Watch for Stopped Vehicles” (or Traffic, or Trucks), “Watch for Turning Vehicles” (or Traffic, or Trucks), “Turning Traffic Ahead”, “Watch for Turns”, “Watch for Left Turning Vehicles”, “Trucks Turning”, “Watch for Turning Trucks”, “Bus Turn”, and other variations. New York City uses a symbol along with the words “Traffic May Be Stopped Ahead”. Additionally, 6 States use signs to warn of congested traffic conditions ahead (see Exhibit B-40), which obviously implies stopped or very slow traffic. In Europe (and other parts of the world) there is a standard symbol to denote congestion, used primarily on changeable message signs to give notice of actual congestion (see illustration.) Recommendations: 1) Add a uniform sign legend of “Watch for Stopped Traffic” for optional use, to warn of possible stopped traffic at unexpected locations, regardless of what types of vehicles are stopped and regardless of whether they are turning or not; 2) Evaluate the European/International symbol for congestion for future addition.



W11 – Advance Crossing Warnings – Non-Vehicular [Exhibits B-30 to B-34]:

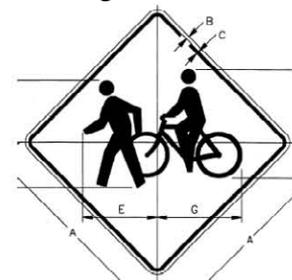
Additional Large Animal Crossing Symbols: The MUTCD includes only 3 signs to warn of the possible crossings of animals---deer crossing (W11-3), cattle



crossing (W11-4), and equestrian crossing (horse with rider, W11-7). The prevalence of other types of large animals that may cross roads (and which may cause significant damage or injury if struck by a vehicle) has caused at least 16 States to develop signs (usually symbolic) for warning of one or more different animal crossings. The most common of these, in use by multiple States (often using the exact same symbol, copied from one another) are moose/elk/caribou/antelope (10 States), horse without rider (wild horses) (5 States), bear (4 States and National Park Service), burro/donkey (3 States), bull/steer (3 States), sheep (3 States), and bighorn sheep (2 States). These animals all look so significantly different from the 3 existing animal symbols that the States determined the standard MUTCD signs would not provide an accurate meaning and adequate warning. Recommendation: Add symbol signs, using the applicable State design having the best legibility distance, for optional use to warn of the possibility of each of these large animal crossings: moose, elk/caribou/antelope, horse without rider (wild horses), bear, burro/donkey, bull/steer, sheep, and bighorn sheep. Educational plaques could be used with these new symbol signs if needed.

Livestock Open Range Area: In the western States, some roads traverse areas where ranch animals (livestock) roam free, without any fences to constrain them from crossing the roads. Thus, a road user could encounter livestock animals at any point along the unfenced road, rather than just at specific places where crossings are allowed by fence openings, gates, etc. At least 10 western States use signs to warn users of these so-called “open range” areas. However, there is a wide variety of legends among the States, including “Range Cattle”, “Range Stock at Large”, “Livestock”, “Loose Livestock”, “Watch for Stock”, “Open Range”, “Grazing Area”, and other variations. To an easterner or midwesterner unfamiliar with these types of western conditions, the terms “Open Range” and “Stock” or “Loose Livestock” very likely are not clearly understood. Recommendation: Add a uniform sign with the legend “No Highway Fences Next X Miles – Watch for Animals Crossing” for optional use in “open range” areas.

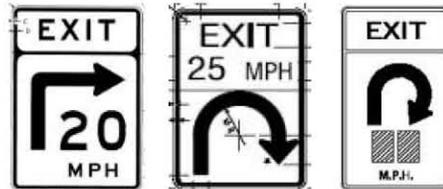
Combined Bicycle/Pedestrian Crossing Warning: With the increasing mileage of shared-use paths in the U.S., the number of places where these shared-use paths cross a road or highway is also increasing. Shared-use paths are typically used by bicyclists and by pedestrians, joggers, etc. To provide advance warning of these crossings and to indicate the location of the crossing itself (with a diagonal downward-pointing arrow W16-7p plaque), it is currently necessary to use both the W11-1 (bicycle) and W11-2 (pedestrian) crossing warning signs, mounted together on the same post, or sequentially along the road. To simplify and improve the signing for shared-use path crossings, at least 7 States use either a single sign with combined bicycle and pedestrian symbols or a word message sign with a legend such as “Pedestrians Bicycles”, “Recreational Trail Crossing”, or similar. Recommendation: Add a symbol sign for combined pedestrian and bike crossing warnings (Maryland design) for use in advance of crossings of shared-use paths across uncontrolled roadway approaches.



W13 – Advisory Speed [Exhibit B-36]:

Combined Exit/Ramp Advisory Speed and Turn Warning:

On many older freeways, there may be sharply curved exit ramps, where ramp or exit curvature is not apparent to drivers in the deceleration or exit lane. These conditions may also be accompanied by other substandard geometry such as lack of a deceleration lane. In such cases, use of a standard turn warning sign alongside the deceleration lane or on the main roadway in advance of the ramp might be mistaken as being intended for the mainline thru lanes of the freeway. At least 4 States have developed signs that combine an Exit/Ramp Advisory Speed sign and a turn warning into a single vertical rectangle sign, thereby identifying the turn as specifically being on the exit or ramp. Recommendation: Add Combined Exit Advisory Speed/Turn Warning and Combined Ramp Advisory Speed/Turn Warning signs (based on the MD, MI, or OK designs) for optional use where ramp or exit curvature is not apparent to drivers in the deceleration or exit lane or where the curvature needs to be specifically identified as being on the ramp rather than on the mainline.



W16, 17, 18, 25 – Misc. Warnings [Exhibit B-37 to B-41]:

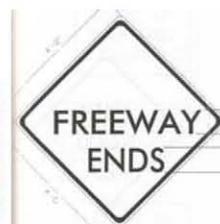
Fog Warning: At least 8 States use signs to warn of the frequent possibility of fog conditions reducing visibility in a specific section of roadway. Five of the 8 States’ signs use the legend “Fog Area”, while other messages such as “Watch for Fog” are also used. “Watch for Fog” is a more precise message because it tells the driver specifically what to do. Recommendation: Add a standard word message sign with legend “Watch for Fog”.



Gusty Winds: In certain areas, high winds occur with regularity and these winds are of particular concern to trucks, RVs, and other vehicles with a high center of gravity. At least 11 States use signs to warn of these conditions, but a very wide variety of legends are used, such as “High Winds”, “Cross Winds”, “Side Winds”, “Gusty Winds”, and various combinations of these terms. Recommendation: Add a generic “Gusty Winds Area” sign for this purpose.



Freeway Ends: There are many locations where a freeway ends by changing to an uncontrolled access highway and it is important to warn drivers of the end of freeway conditions. In other cases, the need for this type of warning may be generated by other conditions not readily apparent to the road user. At least 21 States have developed their own standard



warning signs for this purpose and use them both in advance of and at the point where the

limited access freeway (or expressway) ends. Some States' signs say "End Freeway X/X Mile" while others say "Freeway Ends X/X Mile". Both diamond-shaped and horizontal rectangular shaped sign designs are used. Recommendation: Add signs with the legend "Freeway Ends X/X Mi." and "Freeway Ends" in both diamond-shaped and rectangular (generally for overhead mounting) formats.

Signal Under Study for Removal: Text in Section 4B.02 of the MUTCD recommends that a sign stating "Signal Under Study for Removal" should be installed to give public notice that signal removal is being considered at a particular location. However, neither the MUTCD nor the SHS book illustrates the design of such a sign. Ohio DOT has developed a design for this sign and uses it at all locations being considered for signal removal. Recommendation: Add a standard black on yellow sign "Signal Under Study for Removal" along the lines of the OH design.



W20-24 – Misc. Work Zone Warnings [Exhibits B-42, B-43, B-44]:

Unmarked Pavement: At least 7 States use signs to warn of a road section ahead that has unmarked pavement, generally due to resurfacing. The signs are posted for the time until temporary or permanent pavement markings can be installed. Sign legends include "Unmarked Pavement", "No Pavement Markings", "No Passing Zones Not Marked", "No Center Line", and similar. The Canadian province of British Columbia (BC) uses a sign for the exact same purpose but with the legend "No Road Lines". The BC sign legend is superior to those currently being used by the States because it is in layman's terms rather than technical engineering jargon that some road users may not understand. Recommendation: Add a sign with the legend "No Road Lines" for optional temporary use in resurfacing operations.



S – School Warning Signs [Exhibit B-45]:

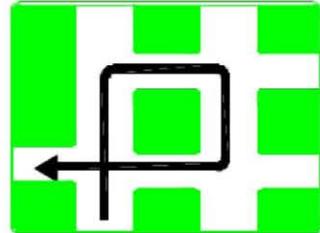
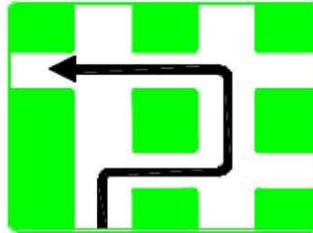
School Bus Stop Ahead: Two States have developed and use symbolic signs to warn of a school bus stop ahead, instead of the MUTCD S3-1 word message sign. Nebraska's sign features an "up" arrow similar to that on a Stop Ahead sign, a rear view of a bus, and a small red octagon. West Virginia's sign shows a bus rear view with the symbol of two pedestrians (identical to that of the symbol on the S1-1 school warning sign) walking toward the bus from the right. The Canadian MUTCD School Bus Stop Ahead symbol is similar to the West Virginia design but with the "up" arrow, red flashing lights on the bus, and one pedestrian on each side of the bus (both pedestrians are walking away from the bus.) The province of British Columbia (BC) sign is almost identical but with larger flashing red lights on the school bus. Recommendation: Replace the existing S3-1 word message sign with the Canadian MUTCD symbol sign, but without the "up" arrow and with an enlarged bus/peds symbol with enlarged flashing red lights. An educational plaque could be used if needed.



Other Signs

D1, D2 – Destination and Distance Signs (Conventional Roads) [Exhibits C-1, C-2]:

Jug Handle Guide Signs: As mentioned previously in the Regulatory Signs section of this report, a variety of States have implemented jug handles and more are expected to do so in the future. The jug handle geometry, while very advantageous in some cases for operational efficiency and safety, requires drivers who intend to turn left or make a u-turn at the at-grade intersection to make maneuvers contrary to their normal expectations. Guide signing in advance of the jug handle, in addition to regulatory signing, is critical to advise potential left-turn or u-turn drivers of the need to move to the right and prepare to execute a right turn either before or beyond the intersection in order to reach their destination. Several States have developed destination guide signs for this purpose, typically of a diagrammatic type. Also, the Central American MUTCD contains several diagrammatic guide signs for standardized use in Central



American countries where jug handle type maneuvers are required. Recommendation: Develop uniform examples of destination guide signs for jug handles and add them to the MUTCD, including cases where the turns are made before the intersection and those where the turns are made beyond the intersection.

Lane Use Combined with Destination Guide Signs: At complex intersections involving multiple turn lanes, multiple destinations, service roads, and/or various constraints often found in urban areas that can limit the ability to use of a series of advance signs, many States have found it necessary to combine lane use information with destination information



onto a single guide sign or sign assembly. At such locations, the combined information may even be more effective than separate lane use and guide signs for conveying to unfamiliar drivers which lane or lanes to use for a particular destination. Typically, lane use arrows or black on yellow E11 (Exit Only) type panels with lane use legends (such as

“Left Lane” or “Left Only”) are associated with particular destinations or route numbers/cardinal directions. However, there is no consistency or uniformity in the colors used, the sign design layouts, or other aspects of these signs. Recommendation: The MUTCD should specifically address the combination of lane use and destination information on guide signs, specifying a consistent and uniform practice for such signs regarding colors and design layouts for arrows, black/yellow panels, etc.

Guide/Information Signs for Passing, Climbing, and Truck Lanes: The MUTCD contains a black on white regulatory sign R4-6 with the legend “Truck Lane 500 Feet.” This sign has been in the Regulatory Signs chapter of the MUTCD since the earliest editions. However, the message it conveys is one of information rather than regulation. (The regulatory message is conveyed by the R4-3 “Slower Traffic Keep Right” or the “Keep Right Except to Pass” sign used by at least 19 States.) Because the sign giving the distance to the next Truck Lane has been in the regulatory series, most of the at least 16 States who use signs for this purpose for truck, climbing, or passing lanes have used black on white regulatory signs to provide this distance information for those types of added lanes. Recommendations: 1) Delete the R4-6 sign from the regulatory sign series; and 2) Add white on green guide/information signs to provide information on the distance to the next truck lane, climbing lane, or passing lane. Two varieties should be added---“Next Truck (or Passing, or Climbing) Lane X Miles”, and “Truck (or Passing, or Climbing) Lane XXX Feet (or X/X Mile)”.



Guide/Information Signs for Slow Vehicle Turnouts: Slow vehicle turnouts are used in some States to provide a place where slower moving vehicles that are delaying vehicles behind them can briefly move over to stop off the travel lane while the following (faster) vehicles move by them. The turnouts are places where the pavement is widened or the shoulder is specifically marked for a few hundred feet as the “turnout”, which is different from a climbing or passing lane. Usually there are regulatory signs legally mandating that slow vehicles delaying 5 or more following vehicles must use the turnout. However, similar to the case with passing and climbing lanes, most of the States who provide slow vehicle turnouts use black on white regulatory sign designs to convey information about the distance to the next turnout. Such signs should more appropriately be white on green signs. (See the Regulatory section of this report for recommendations for regulatory signs associated with these turnouts.) Recommendation: Add a white on green sign with legend “Slow Vehicle Turnout X/X Mile”.



Guide Signing for Chain-Up Areas, Brake Check Areas, and Runaway Truck Ramps: Some States provide off-road areas (on the shoulder or in a physically separated rest area type of roadway) for drivers to install and remove tire chains during winter weather conditions. Some States also provide similar areas for trucks and other vehicles to check their brakes in advance of the start of a long downhill grade. Signing

for these Chain-Up Areas and Brake Check Areas follows the Rest Area guide signing example (white on blue) in two States, while a third State uses black on white signs and a fourth State uses black on yellow. Also, the MUTCD contains a series of signs in Chapter 2C (Warning Signs) for Runaway Truck (or Truck Escape) Ramps. These signs (W7-4, W7-4b, and W7-4c) are all designed as black on yellow warning signs, even though

their legends are those of guide/information signs (“Runaway Truck Ramp 1 Mile”, “Runaway Truck Ramp (with diagonal arrow)”, and “Truck Escape Ramp”. All three of these types of areas (chain-up, brake check, and runaway truck) are similar in some ways and could be considered motorist services in the same way that rest areas, welcome centers, scenic overlooks, parking areas (see D5-4 sign), etc. are motorist services. The guide signs associated with all three types of areas should be consistent in color. Recommendations: 1) Add white on blue guide signs for use in advance (X/X Mile) and at the gore (with diagonal arrow) for Chain-Up Areas, Brake Check Areas, and Runaway Truck (Truck Escape) Ramps; 2) Delete the W7-4, W7-4b, and W7-4c signs from the warning sign series.



D3 – Street Name Signs [Exhibit C-3]:

Use of Route Shields on Street Name Signs: On streets that are part of a U.S. or State numbered route, various cities have found it useful to include a U.S. or State route shield on the street name signs. Typically route marker assemblies such as shown in Chapter 2D of the MUTCD are only provided on intersecting roads that are also numbered routes, and on some very major unnumbered streets within cities. Including a route shield within the street name sign provides additional information for traffic on the lesser streets that intersect the numbered route. This is helpful to unfamiliar road users who may be attempting to “find their way back” to a numbered route and who do not recognize the street name. MUTCD Section 2B.38 specifically allows street name signs to include a symbol (pictograph or logo) of a governmental jurisdiction or a government-approved institution, but it does not provide for the addition of a route shield. Recommendation: Add text to Section 2B.38 allowing the use of a U.S., State, or County route shield and route number on D3-1 street name signs, and add an illustration of this in Figure 2D-8.



D7 – Park and Recreational/Cultural Area Guide Signs [Exhibits C-4, C-5]:

Wildlife Viewing Area: The AASHTO Subcommittee on Traffic Engineering recently completed a survey of the State DOTs regarding guide signs for wildlife viewing areas. The results of that survey have been added to the information on wildlife viewing signs discovered as part of this synthesis. The results indicate that the vast majority of the 19 States known to be using these signs are using a binoculars symbol on guide signs to denote wildlife viewing areas. The binoculars symbol is not included among the adopted recreational and cultural interest area symbol signs listed and illustrated in Chapter 2H of the MUTCD. It is a new symbol that has been promoted by Watchable Wildlife, Inc., a nature group. The design details of the binoculars symbol vary slightly from State to State, and in some cases the symbol has been accompanied by the text “Wildlife Viewing Area”. Recommendations: 1) Add the binoculars symbol sign to Chapter 2H and add a standard design for the symbol to the SHS; 2) The symbol should be accompanied by an educational plaque if used in an assembly such as those illustrated in Figure 2H-3; and 3) If the symbol is incorporated into a larger guide sign as a destination, the sign should also include the text “Wildlife Viewing Area”.



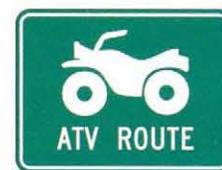
D9 – General Services Signs [Exhibit C-6]:

Symbol for TDD Services (Telecommunication Devices for the Deaf): At least 5 States use a D9 series general services symbol sign to denote the availability of TDD services (telecommunication devices for the deaf) at an exit, rest area, or other location. All 5 States use the same white symbol on a blue background. The symbol is an international symbol that has been adopted by the U.S. Access Board to denote the availability of telecommunications devices for the deaf. The symbol shows a side view of a phone handset, three rows of what appear to be typewriter keys, and a typewriter space bar. Recommendation: Add the international TDD symbol to the D9 general services series of signs.



D11, D12, D13 – Miscellaneous Information Signs [Exhibits C-7, C-8]:

Route Signs for Alternate Types of Vehicles: The MUTCD contains in Part 9 the D11-1 Bicycle Route sign, a horizontal rectangular white on green guide sign that may be used to guide bicyclists to or along a bike route, in lieu of bike route markers. At least 4 States have adapted the design of the D11-1



sign to develop signs for snowmobile routes, all terrain vehicle (ATV) routes, golf cart routes, etc. Many local jurisdictions are using these designs also, as evidenced by the Snowmobile Route and ATV Route D11-1 variations appearing in the catalog of the sign manufacturer. Recommendation: Add signs to the D11 series for Snowmobile Route and ATV Route, using the D11-1 sign as the model for the design and using the standard symbols for snowmobile and ATV that are already included in MUTCD Chapters 2C and 2E and in the SHS.

E1 to E7 – Freeway Guide Signs [Exhibit C-9]:

Orange Guide Signs in Work Zones: At least 2 States and possibly several others are using black on orange signs for advance and exit direction guide signs along the freeway mainline within the limits of work zones. Usually, existing white on green

guide signs remain in place in the work zone, but if temporary guide signs for interchanges must be erected during all or some stages of the construction project because the permanent signs must be relocated, these States have used the black on orange color for the temporary signs. There is some thought that the orange color reinforces the fact that the road user is within a work zone and thus encourages additional caution. On the other hand, black on orange has less legibility than white on green. Section 6F.02 of the MUTCD requires guide signs in TTC zones to be white on green except as otherwise provided in Section 6F.50, which requires black on orange for “additional temporary guide signs in TTC zones.” It is unclear whether the word “additional” in Section 6F.50 was intended to cover temporary guide signs that are merely replacing permanent guide signs with identical legends for a certain period during construction. Recommendation: Clarify Section 6F.50 regarding the use of black on orange guide signs for the situations described above. If there is value to this color scheme, or variations of it, then it should be a standard or guidance.



Guide Signing for Express/Local Lanes and All Trucks/No Trucks Lanes on Freeways: In at least 2 States, there are freeway facilities with two separate roadways in each direction. One roadway is designated as the “Express Lanes” and typically has a limited number of access and egress points, while the other roadway is designated “Local Lanes” and has full access and egress at all interchanges. On the mainline where the express and local roadways diverge, and at interchanges where there are different entrance ramps to the two roadways, the States have found a need to identify the Express and Local roadways on guide signs. Sometimes the legend “All Exits” is also used with the guide signs for Local lanes. Some States also use similar panels on guide signs directing drivers to separate entrances/exits to or from roadways on which trucks are allowed vs. prohibited. Either black on yellow or black on white panels are used for these purposes. The yellow panels are more conspicuous than the white panels, but use of yellow panels on guide signs is currently limited by the MUTCD to “Exit Only” (plus “Left” on Exit Number plaques and an advisory speed on the Exit Gore sign.)



Recommendation: Determine a uniform practice and color for panels on guide signs to indicate EXPRESS LANES, LOCAL LANES, ALL EXITS, ALL TRUCKS, and NO TRUCKS and include these panels in the MUTCD.

E11 – Exit Only Panels on Guide Signs [Exhibit C-10]:

Left Exit Panels: The MUTCD E11 series only includes the black on yellow “Exit Only” panels used on guide signs in the case of freeway lane drops. Left exits (without a lane drop) are also very unexpected by road users and require additional warning. Section 2E.37 requires that Interchange Sequence Signs include a black on yellow panel “Left” or “Left Exit” alongside the interchange name or exit number of a left exit that is one of two or three interchanges listed on the sign. However, such panels are not



numbered or illustrated in the MUTCD or SHS. At least 6 States have developed designs for these panels and include them in their signing standards, and there is photographic evidence that other States are using the panels as well. Recommendation: Add “Left” and “Left Exit” black on yellow panel designs to the E11 series.

E13 – Advisory Speed Panels for Freeway Guide Signs [Exhibit C-10]:

Advisory Speed Panels on Exit Direction Signs: As illustrated in MUTCD Figure 2E-11, there is a standard E13-1 black on yellow advisory panel that may be used underneath an E5-1 or E5-1a Exit Gore Sign to give extra emphasis of an especially low ramp speed. However, at least 4 States have found it necessary to use similar advisory speed panels with Exit Direction and/or diagrammatic guide signs (located upstream from the gore) to provide even more

advance notice and emphasis of a very low ramp speed, typically because of curvature.

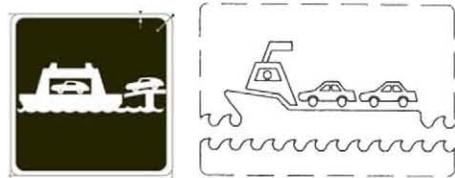
These panels are in addition to the standard ground mounted W13-2 or W13-3 exit advisory or ramp advisory speed warning signs.



Recommendation: Add black on yellow panels with the legend “Exit XX MPH” for use with Exit Direction or Diagrammatic guide signs where needed for extra emphasis of an especially low ramp or exit speed.

I – General Information Signs [Exhibits C-11, C-12, C-13]:

Transportation Terminal Signs: MUTCD Section 2D.48 provides for the use of certain symbolic white on green signs (I-5 through I-8 and I-11) to identify a route leading to an airport, bus station, train station, library, or recycling collection center. These signs may be used alone as a route marker, with auxiliary arrows, or incorporated into a larger guide sign. Several States use signs similar to the I-5 to I-8 series to identify routes leading to other specific transportation facilities, including car ferry terminals, passenger cruise ship docks, and train stations with Amtrak



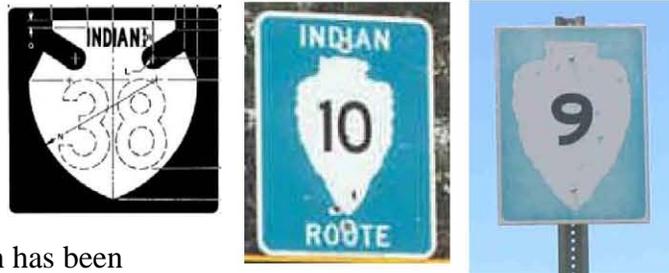
service. At least four different symbols are being used by States to denote car ferry terminals. There is also a Canadian symbol that is similar to the symbol being used by Connecticut. (The Traffic Control Devices Pooled Fund Study (TCD PFS) is currently evaluating ferry symbols and will be recommending one as a uniform standard.)



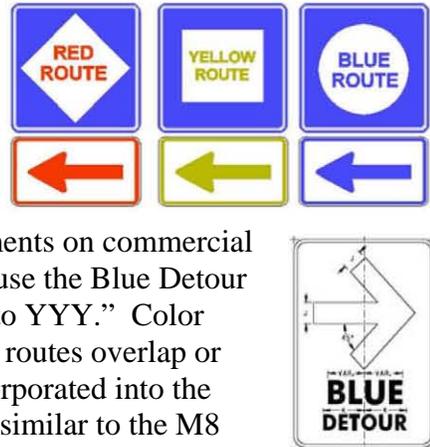
Recommendation: Add an I-series sign for routes leading to car ferry terminals, using the symbol recommended by the TCD PFS when that study is completed.)

M1 to M7 – Route Markers and Auxiliaries [Exhibits C-14, C-15]:

Indian Road Route Marker: At least 5 States use a route marker shield in the shape of a carved arrowhead to sign numbered routes within or leading to Indian reservations. The designs of the shields differ slightly from State to State but they are all unmistakably arrowhead-shaped. Two States use a square black background for the shield, while the other three use a rectangular green background. It is possible that this arrowhead design has been prescribed by the Bureau of Indian Affairs (BIA), although no information on this could be obtained from the BIA’s website. Recommendation: Add a standard design for the Indian road route marker to the M1 series of route markers.



Color Coded Detour Routes: At least 5 States use colors to designate different detour routes where there are multiple detour routes established within a highway corridor or urban area. The detour routes are designated, permanently signed as “Blue Detour”, “Red Detour”, etc., and trailblazed accordingly with color-coded route marker type guide signs with legends and/or arrows in the color of the route. When incidents or work zone delays occur in the corridor, the highway agency uses changeable message signs, highway advisory radio, and announcements on commercial radio station traffic reports to encourage road users to “use the Blue Detour route to get to XXX or use the Red Detour route to get to YYY.” Color coding is also particularly helpful when multiple detour routes overlap or intersect. In some cases the directional arrows are incorporated into the detour sign panel, while in other cases auxiliary arrows similar to the M8 series are used except they are color coded to the color of the detour route. Recommendation: Add uniform designs of color coded detour route markers and assemblies to the M series and cross-reference to these in Part 6.



M4 Auxiliaries for BEGIN and TOLL: It is the practice in at least 7 States to use an auxiliary “BEGIN” sign above the confirming route marker just beyond the start of that particular route. Also, at least 5 States use an auxiliary “TOLL” sign above route markers whenever the route is a toll road. Recommendation: Add these two auxiliary signs to the M4 series, for use above route markers.



Lane Use Auxiliaries Below Route Markers: At least 7 States use M6 auxiliary signs stating “Left Lane”, “Center Lane”, or “Right Lane” below route markers in route marker assemblies. In essence this is an economical alternative to one or more larger green guide signs as a method to tell road users what lane to get into to travel onto a particular numbered route. Recommendation: If this type of sign assembly is considered adequate and appropriate for some conditions, as a supplement to normal assemblies with arrow auxiliaries, the “XXX Lane” auxiliaries should be added to the M6 series of auxiliaries.



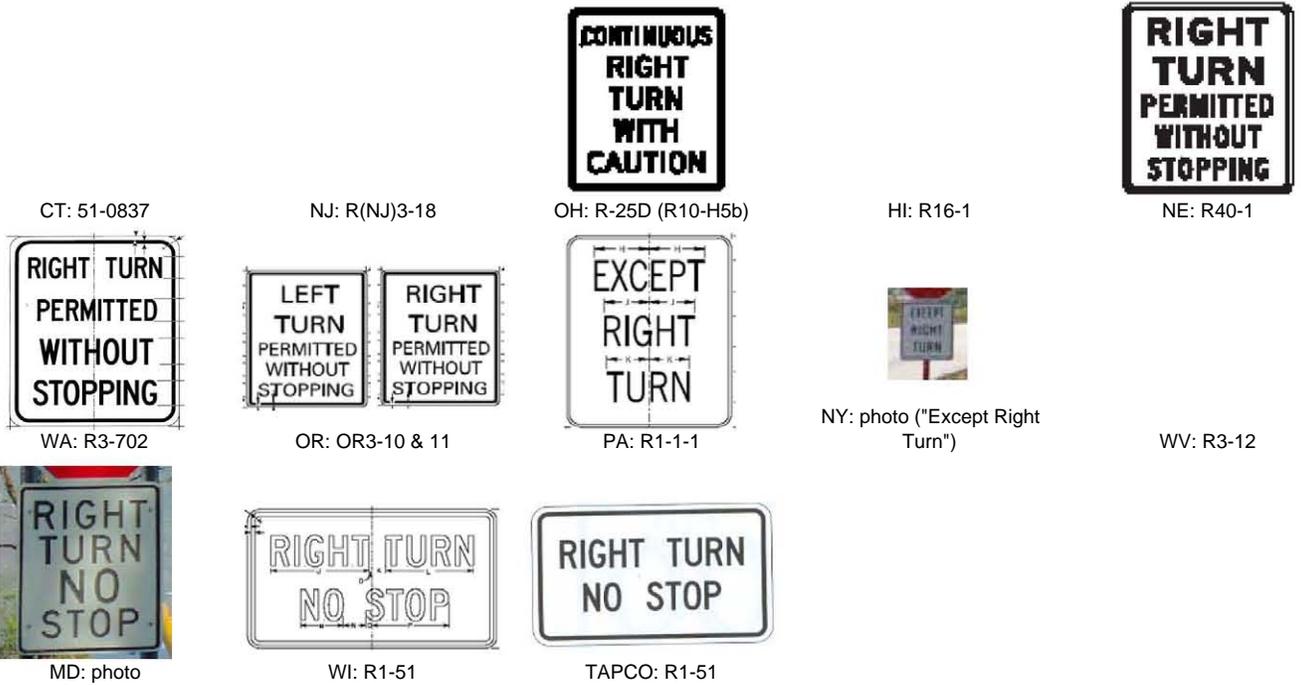
EXHIBIT A

REGULATORY SIGNS

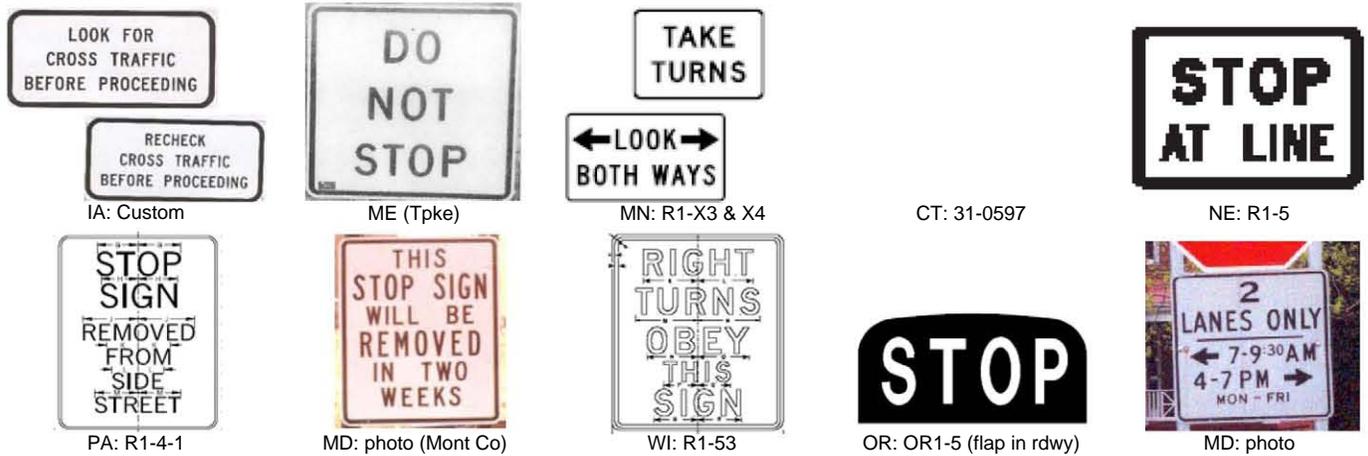
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R1 - Stop and Yield Sign Related Messages

Right Turn Without Stopping



Other Stop Sign Related



R1 - Stop and Yield Sign Related (Cont'd.)

Yield To X



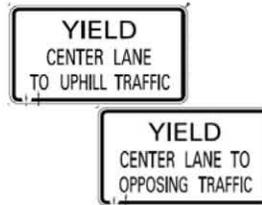
CA: R55



HI: photo



ID: R4-15



OR: OR4-11 & 11a



WI: R3-72



OR: OR22-5



MD: R10-12(2)



MD: W96-10 (blk/wht)

"State Law - Drivers Yield to Rotary Traffic"
MA: R4-14

Stop or Yield for Peds, Bikes



MD: R9-1(3) (yellow top)



GA: R560-5



NE: R40-22



MN: R1-6b, R1-X1



MT: S2-1S (plaque w/ all school signs)



AZ: S2-2



NM: R9-9



NC: overhead (policy C-36)



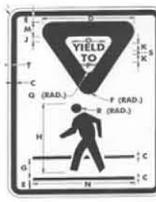
NY: R9-7 & R9-8 (in rdwy) (Spec. Auth. 02-1, 02-2)



GA: photo



NH: R1-2B1



NJ: R(NJ)9-9A

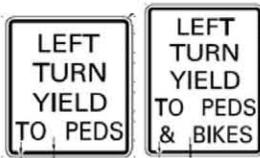
VT: VR-346



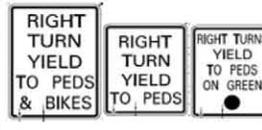
NY: photo



NY City: SW-619, 620, 621



OR: OR17-6 & 6A,



OR: OR17-5 & 5A, OR22-14



Montg Co, MD: photo



NY City: photo



NY: R9-6 (Spec. Auth. 99-2)



OR: OR22-25L & R



Portland OR: photo

R2 - Speed Limit Related

Neighborhood or Areawide Speed



ID: R2-3



IL: Naperville photo



MO: R2-6



NC: R2-27



NC: Policy # S-70



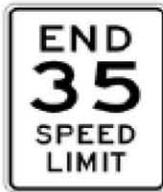
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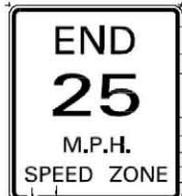
NY: R2-2 to R2-6

VT: VR-114, 208

End Speed Zone



CA: R3



OR: OR2-6



PR: R2-6



NE: R2-8



NY R2-11



TN: TN-9



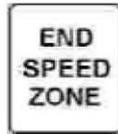
VA: VR-5



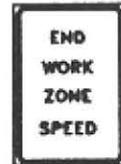
MN: R2-6



MT: R2-7D, R2-16



MA: R2-7

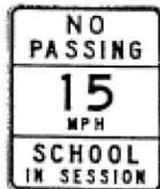


ME (Tpke): CS-30

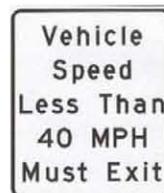
Misc. Other



IL: S4-1101



AZ: S4-5



IA: Custom

WV: R2-1M (orange top)



NC: photo

VT: VR-122

R2 - Speed Limit Related (cont'd)

Speed Enforcement - Aircraft



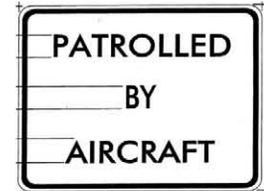
VA: Policy TE-298

CA: R48-2

CT: 31-5533



OR: OR19-6



NV: NPA-3

"Speed Measured by Aircraft"

NM: R2-6

AZ: R2-6

AL: I-30

Speed Enforcement - Radar



CA: R48 & R48-1



HI: R2-10



MD: R2-1(RE) plaque



NC: M14-10

WV: R2-8



VT: VD-557P, VR-114

NV: NRR-1



VA: VR-3 & 26, policy TE-298



Sacramento CA: photo



MT: R2-11



CT: 31-

NC: R10-19a

Speed Enforcement - Other



AL: I-31

GA: I550-1

"Speed Check By Radar and Aircraft"

KS: W13-4

CT: 31-5515

VA: VD-655P



"Speed Limit Strictly Enforced"
KS: W13-4A

Unknown loc: photo

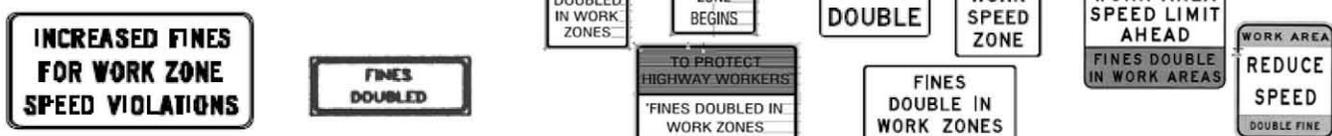


NC: M14-12

Fines Higher - Work Zones



AK: R16-100 to 102, R2-100 AL: R16-3 (orange top), R16-4 CO: G20-12 (orange) CT: 31-1906, 1909 FL: FTP-37-04, MOT-13-04



ID: R2-6A ME (Tpke): CS-15 MI: R5-18 & 18a, 18c MN: R2-6c & R2-X8p, R16-X14 MD: G95-6 & 6(1)



MD: G95-7(1) & G95-8 MT: R2-15 NE: R2-1WZ, R41-17, S4-6 NV: NBA-3 (WZ) OH: R11-H5A



OK: (orange top) PA: I-35-1 & 1X (yellow top), W21-17 (orange) MO: photo RI: Std. 27.1.1 (orange top panel: Work Zone) TN: TN-44

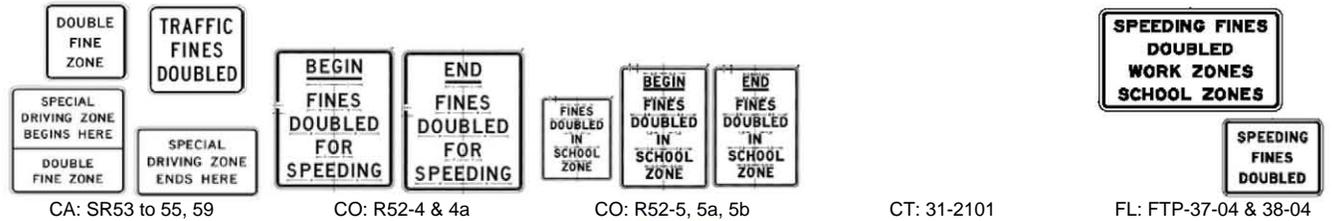


UT NM: R2-1a, R2-5d,e,f NM: R54-4, R52-5, R52-6a VA: policy MM-317



NY: R2-13 (Spec. Auth 00-1) OR: OR4-20 & OR22-26 NJ: R(NJ)5-17 VT: VR-355 WI: W21-62

Fines Higher - Other



CA: SR53 to 55, 59 CO: R52-4 & 4a CO: R52-5, 5a, 5b CT: 31-2101 FL: FTP-37-04 & 38-04



NJ: R(NJ)2-7A&B VA: safety corridor Montg Co, MD: photo

R3 - Turn Prohibitions and Lane Use

Turn Prohibition Variants



MD: photo



Canada: RB-10



Ontario, Can.: Rb-15 (No Turns)

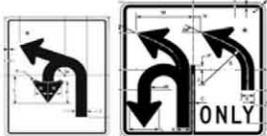


NYC: photo

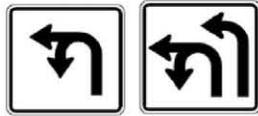


MD: photo

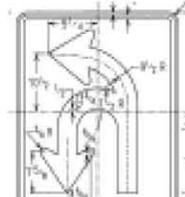
Turn Prohibition or Lane Use - U-Turns Allowed



AK: R3-4A & 4B



CA: R73-2, R73-5



GA: R553-6

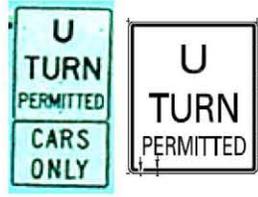


Tucson AZ: SPR-03-05, 06, 10

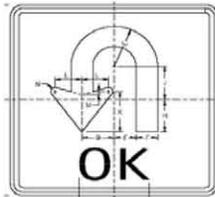
VA: policy TE-274



Unknown loc: photo



OR: OR3-12



PA: R3-5-1

HI: R16-6 & 7



NC: photo



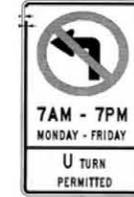
NC: photo



Unknown loc: Photo

VT: VR-195

VT: VR-405, 405A

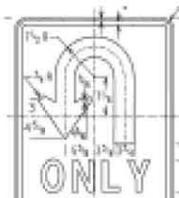


MD: R3-3(6)

Lane Use - U-Turns Only (Mandatory Movement)



Tucson AZ: SPR-03-17



GA: R553-5



NY: R3-21



MD: photo

Lane Use - Lane for U-Turns (or U and Left Turns)

NJ: R(NJ)3-7, 30-2B,C, 30-12

NJ: R(NJ)30-4, BL, L

NJ: R(NJ)30-6A,B,C,D

NJ: R(NJ)30-8, 9L



MD: R3-4(2)

VT: VR-433, 497L



FL: photo



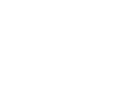
WA: photo

R3 - Turn Prohibitions and Lane Use (Cont'd)

Lane Use - Lane for Turns



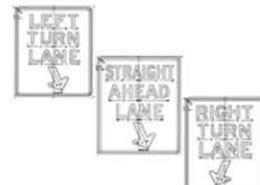
MD: R95-1 R & L



NJ: R(NJ)3-7L



DE: photo "Turn Lane"



WI: R3-55



MI: R3-32



NE: R3-20



MA: R3-8c & d



IL: R3-1100



MN: R3-X1 & X2

VT: VR-085 & 385, 611

Lane Use - Thru Traffic Keep X



NM: R4-12 R & L

NE: R4-3AR



ID: R4-9



MN: R4-X1

NJ: R(NJ)4-7B&C



MT: R4-20

VT: VR-118R&L

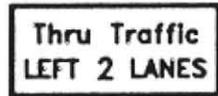


OH: R-36L&R (R4-H11&12)

WV: R4-15R & L



MD: R4-7(1)(R) & R4-8(1)(L)



CT: 31-0202

ME (Tpke): CS-4



NY: R3-33 to 35

CT: 51-4401



PA: R4-20

Lane Use - Lane Must Exit



CA: R18A



CO: R3-7a



TX: R3-21R or L



MI: R3-7a



MN: R16-X7

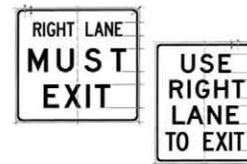


NV: NME-1



NM: SP-3

"Right Lane Must Exit" (126"x54")
KS: E11-2



WA: R3-701 & R3-703

"Right Lane Must Enter Ramp"
TX: R3-20



WI: R3-75



ME (Tpke): G-4A

R3 - Turn Prohibitions and Lane Use (Cont'd)

Lane Use - Left / Right Turn Only



FL: FTP-52-04 & 53-04



ME: (Tpke)



MA: R3-25 & 26



MD: R3-3(4)



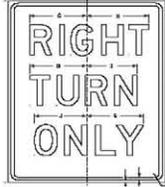
NY: Spec. Auth 88-1



NV: NRT-1



OH: R-24 & 25A (R10-H5a)



WI: R3-53 R & L

NM: R10-12a (R10-14)

WV: R3-11R & L



MI: R3-31 & 31a



Ontario, Can.: Rb-13, Rb-14

NJ: R(NJ)3-5L&R

VT: VR-435, VR-612

Lane Use - All Traffic Must Turn



MN: R3-7 variant



MA: R4-13a



PA: R3-7-1L & 1R

VT: VR-509L&R



MI: R6-11

CT: 31-1513 & 1523

WV: R4-14R & L



NY: R3-14

NJ: R(NJ)4-7D, DA

VT: VR-343R&L



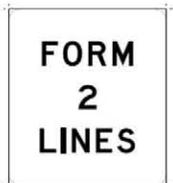
PA: D16-1



TX: R3-22

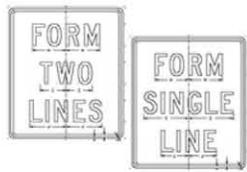
"All Traffic Must Exit Right" (or "Left")
MA: R4-13 RL

Lane Use - Form X Lanes



CT: 51-4602, 31-1571

OR: OR20-5



WI: R3-59, R3-58

VT: VR-185



MO: E12-1 R & L

NJ: R(NJ)32-1

MA: R3-24c, R6-5, R3-24a



NY: R4-11

"Form One Lane Left (Right)"
TX: R20-2R,L



MD: R4-9(1); PA: R4-10

R3 - Turn Prohibitions and Lane Use (Cont'd)

Lane Use - R3-7 Variants



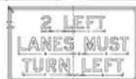
MD: R3-7(1) R & L



PA: R3-7C



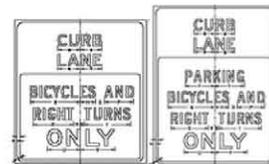
WI: R3-7C, I, & S



VT: VR-515



CA: R18B



WI: R3-21, 22

VT: VR-063 & VR-127

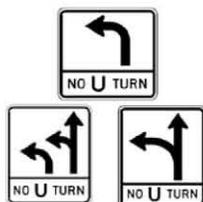
MA: R3-8e & f

CT: 31-0147 & 0154

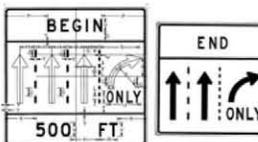
Lane Use - R3-8 Variants



Tucson AZ: SPR-03-02



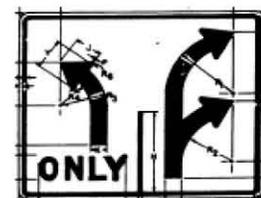
CA: R73-3, 4, 8



MD: R3-8(1) to (8) (Contin. Auxil. Lane)



NE: R3-82R0



OH: R3-H8bp



NJ: R(NJ)3-8H,L



VT: VR-919



WA: photo



NJ: R(NJ)3-8Y



VA: photo



CA: R94

VT: VR-685



KS: photo

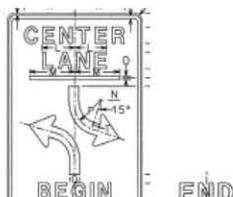


NV: photo

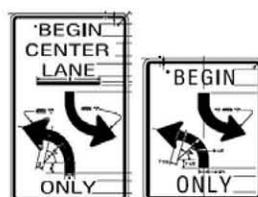
Lane Use - 2-Way Left Turn Lanes



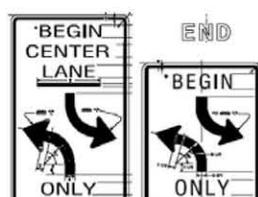
CA: R67



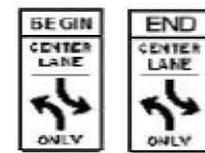
GA: R3-9B



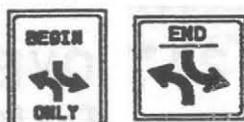
MI: R3-9c & d



MA: R3-9a & b



MT: R3-9J & K



NM: R3-9, 9c



OH: RP-49 & 51 (R3-H9j&k)



PA: R3-9-3

WV: R3-9c & d

NM: R3-9j, 9k

R3 - Turn Prohibitions and Lane Use (Cont'd.)

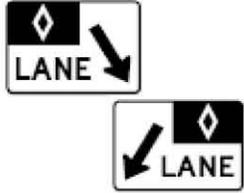
Lane Use - Other



ME: photo (overhead symbolic "Do Not Use Lane")



Los Angeles, CA: photos



MN: R10-X10 & X11



WI: R3-54



WI: W10-52 (B/W)



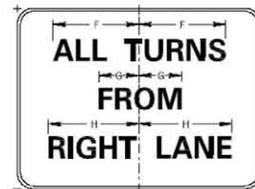
NY City: SR-1674 (blue-black-white)

Jug Handles - Advance Regulatory Signing

CT: 31-1512

"All Turns Keep Right"
MA: R3-14b

"Next Right for All Turns" (or
"for Left Turns")
MA: R3-18 & 18a



PA: R4-15

NJ: R(NJ)31-1

NJ: R(NJ)31-2A to 2F

NJ: R(NJ)34-1A, D, E

NJ: R(NJ)30-1, 30-2D, 2A, 8A

NJ: R(NJ)30-5

NJ: R(NJ)30-7, 7A



NJ: R(NJ)30-8A, 30-10, 11

NJ: R(NJ)30-6, 6A-6D

"To Reverse Direction Keep
Right" or "To Reverse
Direction Use Next Exit" (or
"Second Exit" or "Next Left")
MA: R3-20 to R3-24

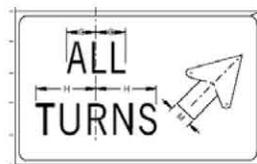
"Right (or "Left") Lane for (u-
turn arrow) Turn"
MA: R3-11a & b

VT: VR-322, 497R

Jug Handles - At Jug Handle Entry

NJ: R(NJ)31-2A to 2F

VT: VR-289



PA: R4-16

NJ: R(NJ)34-1B, C

NJ: R(NJ)30-6, 6A-6D



MA: R3-15c & d (R,L)

NJ: R(NJ)30-9 & varieties

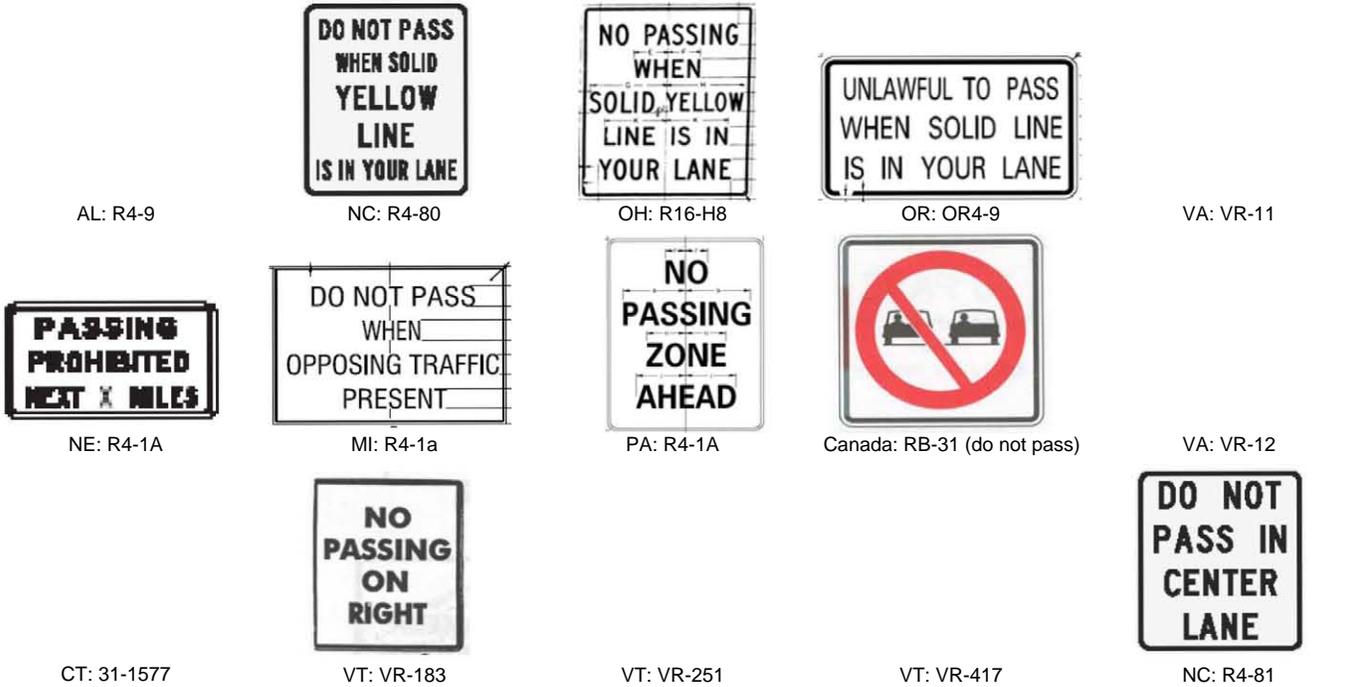
VT: VR-431

NJ: R(NJ)30-3, 30-4

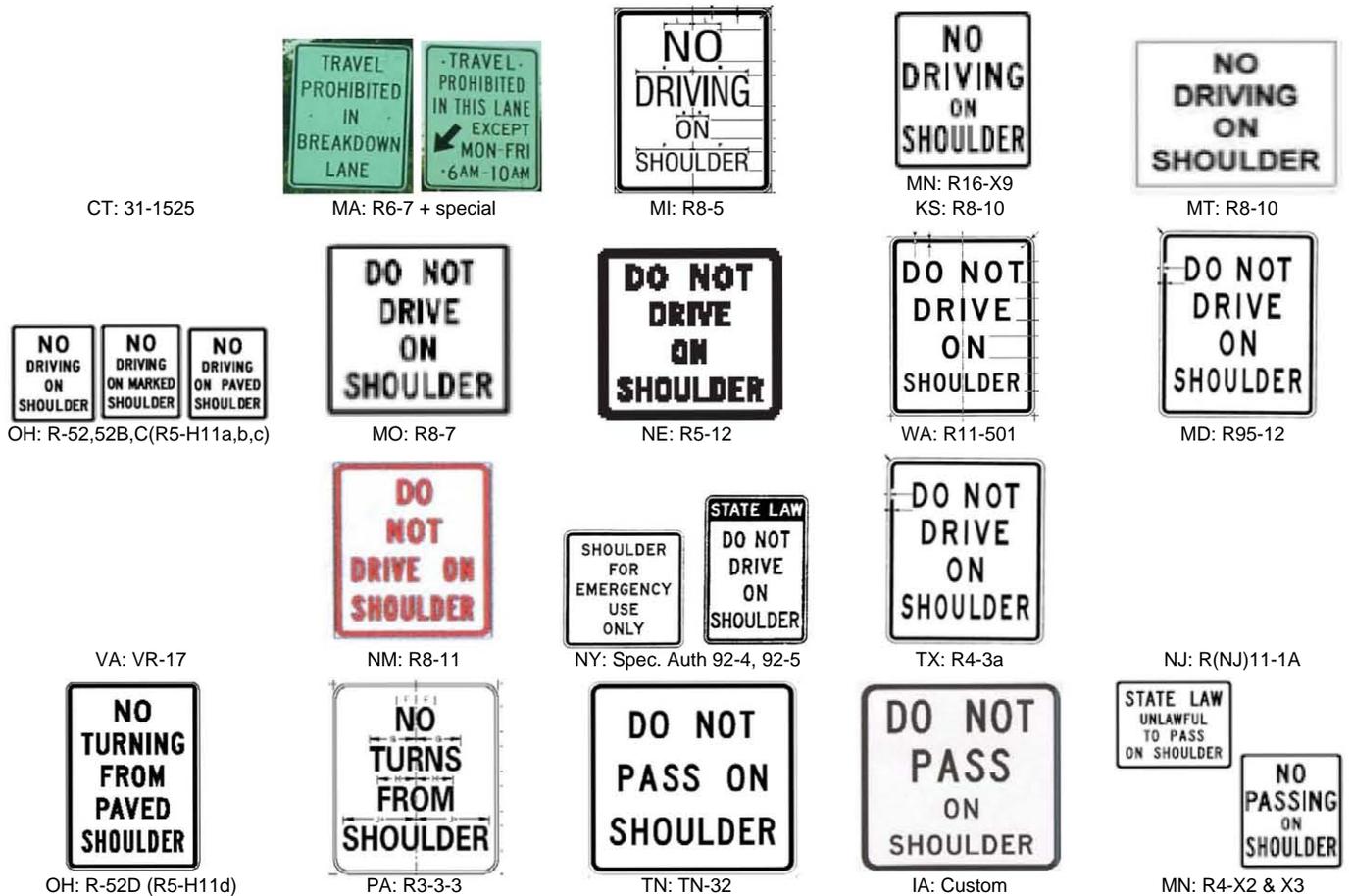
"Enter Here for All Turns" (or
"For Left Turns")
MA: R3-19 & 19a

R4 - No Passing Related

No Passing

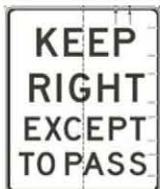


Do Not Drive or Pass on Shoulder



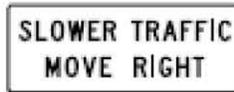
R4 - Slow Moving Traffic Lanes

Keep Right Except To Pass



19 States (listed below):

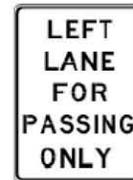
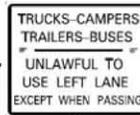
AK: R4-100	MI: R4-5a
AZ: R4-3a	MA: R4-7c
CA: SR5-1	OR: OR4-3
CO: R4-50	PR: R4-4 (in Spanish)
CT: 31-1574	UT: R4-3
GA: R555-1	WA: R4-301
ID: R4-4	NM: R4-13
IN: R4-Y3a	NJ: R(NJ)4-7F
KS: R4-3A	VT: VR-132
ME (Tpke)	



MN: R4-3a



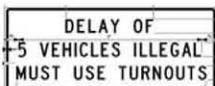
OR: OR4-21, OR4-16 to 19



TX: R4-2a

CT: 31-1503 & 1504

Slow Vehicle Turnouts



AK: R16-103, I-120



AZ: R4-3z



CA: R52, R52A



ID: R20-1 & 2



ID: R20-4



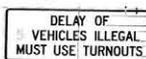
NV: NSV-1 & photo



OR: OR4-14, 15



WA: I8-101, 201,301



WA: I8-501, 601

R4 - No Lane Changing



OH: R-179 (R4-H9)



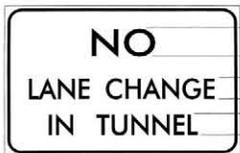
WA: photo



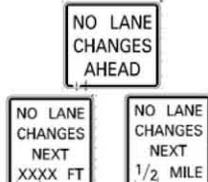
SC: photo

CT: 31-1905

TX: R4-3c



NV: NLC-1



OR: OR22-15, 16, 17

"Do Not Cross Double White Line"

TX: R4-3b

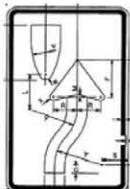


MO: photo

R4 - Keep Right Variants



VA: narrow (photo)



MD: R4-7(2) narrow



ID: R4-10



Sacramento, CA: photo



DE: photos (trf calm policy)

R5 - Exclusions

No Thru Traffic



Tucson AZ: SPR04-01



MN: R5-X4



WI: R5-54



TAPCO: R10-9

CT: 31-1771



OH: R-42A (R5-H2c)

NM: R5-13

VT: VR-482

CT: 31-1772

VT: VR-609, 639

No Thru Trucks



NC: Policy # T-40



OH: R-42 (R5-H2b)



CT: 31-1749, 1754

NM: R5-16

VA: VR-13



CT: 31-1751, 1752



PA: R5-2-3 (used w R5-2)



NY: R7-3 (used w No Trucks)

VT: VR-283

Other Exclusions



VT: VR-565 (no Snowblms)



MN: R5-X1 (No Snowblms)



NY: R5-21 (No Snowblms)



TAPCO: R3-P, R3-SP (no Snowblms)



Canada: RB-65



NY: R5-12 & 13



PA: R4-11 & R4-11-1 & R4-12



NJ: R(NJ)12-7



VT: VR-409

VT: VD-679



ME: Tpke (No ATVs)



Newport Bch CA: photo (No Skateboarding)



MD: R95-14

R6 - One-Way

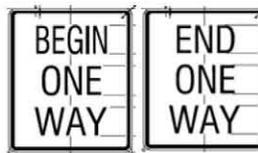


AL: R6-30

AZ: R6-4



CO: R6-50, 51



MI: R6-10 & 10a



MN: R5-X1



PA: R6-10, 12

WV: R6-2a



Ontario, Can.: Rb-24 (Begin 2-way traffic)



Orlando, FL: photo

R7, R8 - Parking

Metered Parking



NM: R7-10 series



Savannah GA: photo



Portland OR: photo



Baltimore MD: photo



Chicago, IL: photo



Europe: photo (pay pkg)



Seattle, WA: photo



Seattle, WA: photos



Portland, OR

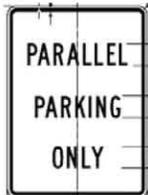


Park City, UT: photo

Parallel Parking



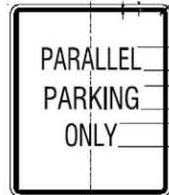
AK: R7-111



AZ: R7-11



IA: R7-7



MI: R7-12

CT: 31-0631



WA: R7-10802



WI: R7-63



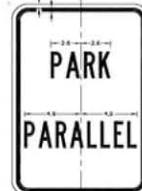
NY: P2-8



CA: R24

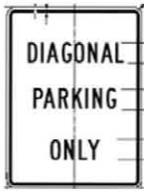


CO: R7-70



NM: R7-12

Diagonal Parking



AK: R7-112



CO: R7-71



NM: R7-11



NY: P2-7

No Stopping, No Standing



MI: photo

"30 Minute Live Parking Only" or "Live Parking Only-- Unattended Vehicles Towed After 30 Minutes"
MA: R8-7a or R7-203



MD: R7-4(10)



OH: photo (Columbus)



Canada: RB-55 (No Stopping)

Maximum Parking



FL: FTP-19-04



WA: R8-1201



AK: R8-101 & photo

Begin or End Parking Regulations



AK: R7-202



Tucson AZ: SPR7-02d & g



WA: R8-301

Other Parking, Stopping



MI: R8-3a(8) plaque



NM: R7-109



Sacramento CA: photo



Portland OR: photo



NPS: PY-835 to 861



MN: S3-2

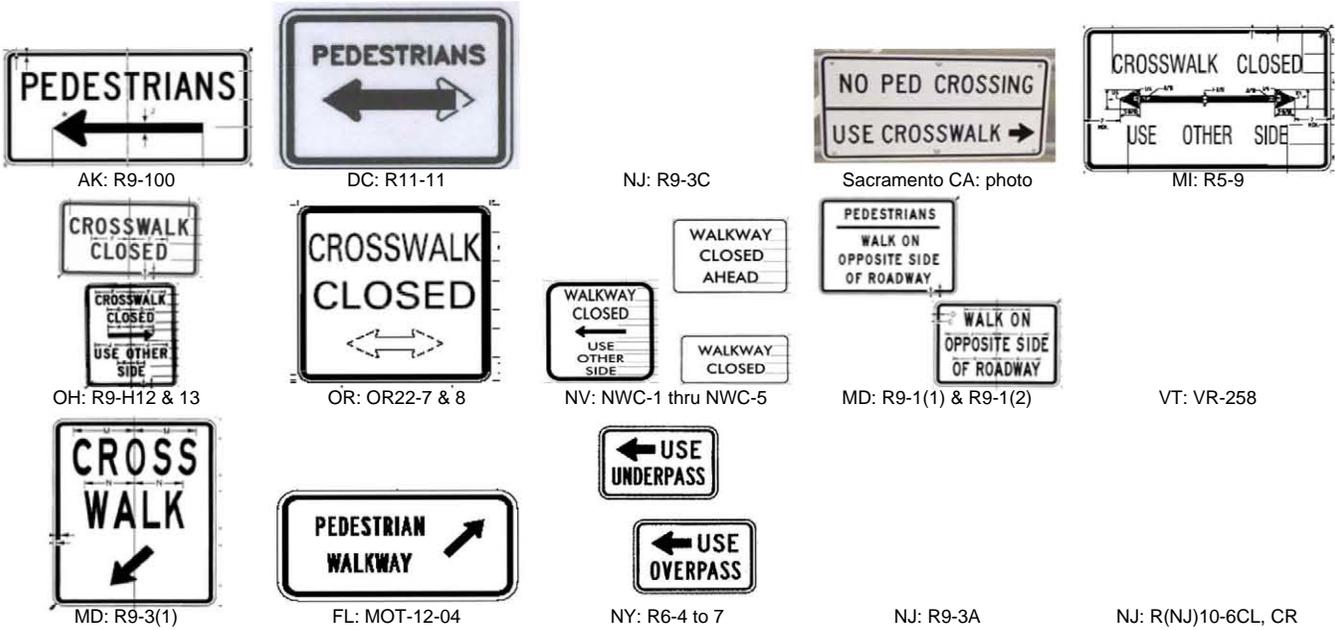
VT: VR-660

CT: 31-1733

"State Prison Do Not Stop for Hitchhikers"
AZ: R9-4b

"No Stopping Inmates Working"
AZ: R8-8z

R9 - Regulations for Pedestrians

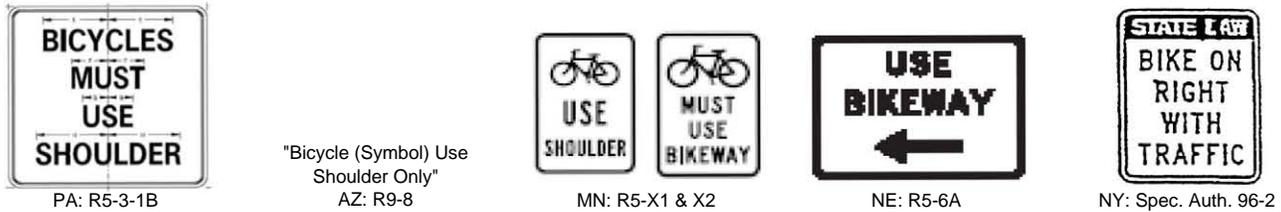


R9 - Regulations for Bikes

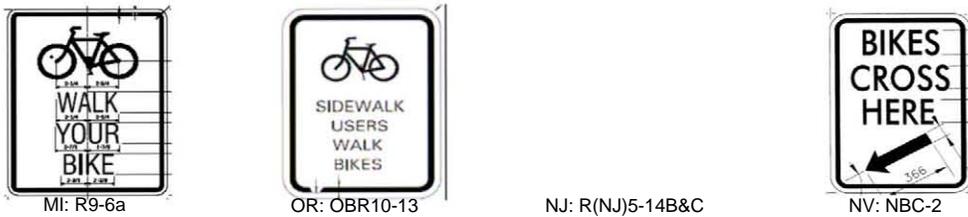
Must Exit



Use Shoulder, etc.

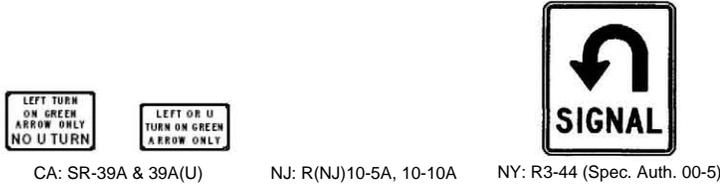
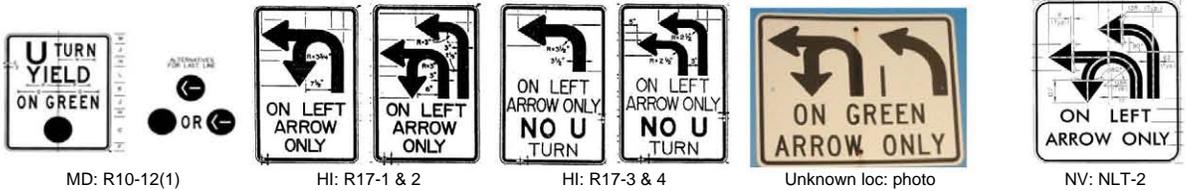


Walk Bikes, Cross Here

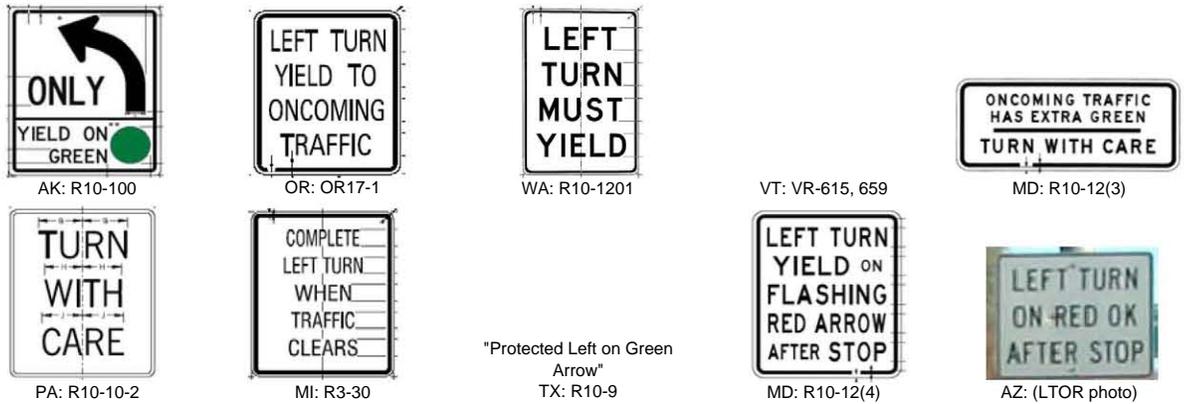


R10 - Traffic Signal Signs

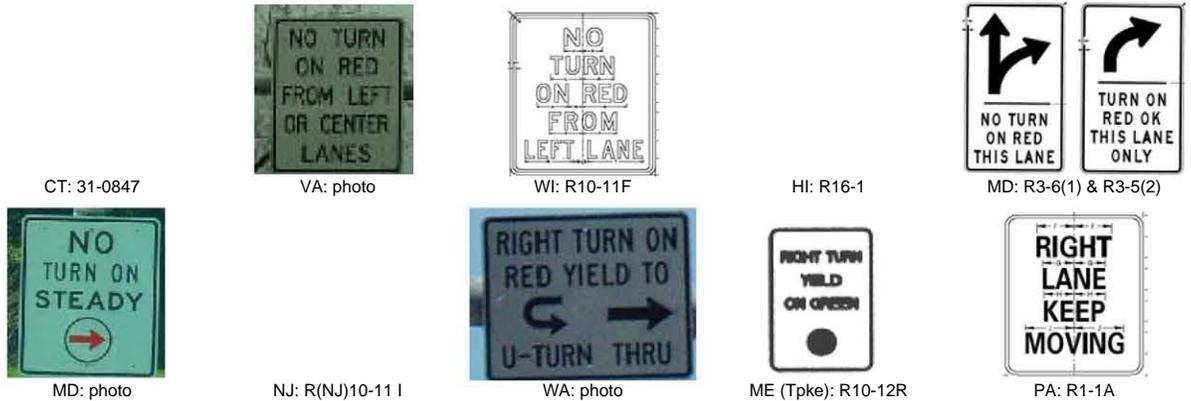
U-Turns



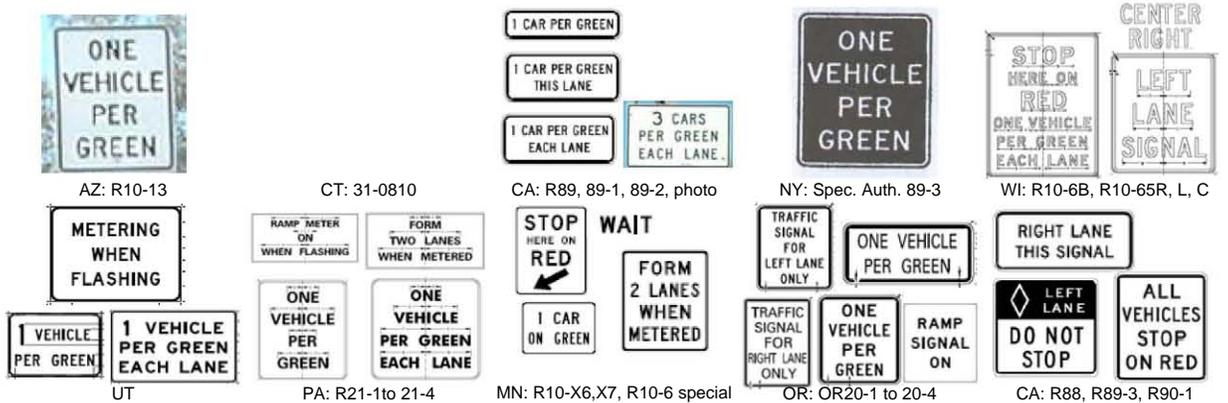
Left Turns



Right Turns



Ramp Metering



R10 - Traffic Signal Signs (Cont'd)

Pedestrian Signals & Warning Flashers



CA: R62E



PA: R10-8



MD: photo



Phoenix, AZ: photo



FL: FTP-26-04



NY City: SR-1675



Canada: ID-21



Ontario, Can.: Ra-13



Ontario, Can: Ra-11



Portland ME: photo



NJ: R(NJ)10-14H



Unknown loc: photo



CA: photo

NJ: R(NJ)10-14A,B,C



OR: OBR10-15



CA: R62C, photo



OR: OBR10-12

Photo Enforcement



Tucson AZ: SPR07-04



CA: SR56 & SR58



MD: R99-2



NC: Policy #R-15



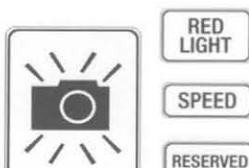
Toledo OH: photo



OR: OR22-19, 19a, 20, 21



NY City: SW-589 (white top yellow bottom)



Canada: ID-33, IS-33,34,35



Sacramento CA: photo



Unknown loc: photo

R10 - Traffic Signal Signs (Cont'd)

Other Signal Instructions



OH: R-130



NJ: W(NJ)11-8D,E



MD: W11-8(1)



Canada: ID-22S (fire signal)



DE: "Emergency Signal-Stop Here on Red" (photo)



WI: R1-61

"Stop Here for Fire Signal"
(w down arrow)
NJ: R(NJ)10-17

"Stop at Line"
IL: R10-1100



OH: R-4L (R10-H6b)

"Stop Line"
MA: R10-11



PA: R10-6-1 (plaque above R10-6 for staggered stop line)



PR: R10-8(A) Do Not Use Lane with Red X

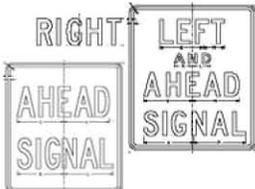


FL: Turbo-T special (photo)



FL: Turbo-T special (photo)

VT: VR-564, 221



WI: R10-10A & R10-11L&R



VA: VS-2, VS-4 (red on black)



MD: W3-3(4)



MD: R10-6(1)



OR: OR17-2

CT: 31-1990

"Stop on Red Signal"
CT: 31-0812

CT: 31-0805



IN: R10-Y14

"Wait for Delayed Green"
MA: R3-17b



NE: R10-5A & 5B



NY: R3-40 & 41

NJ: R(NJ)10-13A&B

Do Not Block



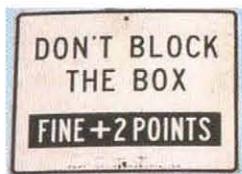
MN: R10-7a



NY: R9-4

NJ: R(NJ)10-7, 7A

VT: VR-656



NY City: Photo



DC: photos

R11 - Road Closure

NM: R11-6 (alt to Rd Closed)



DC: R11-10



NV: NBA-3



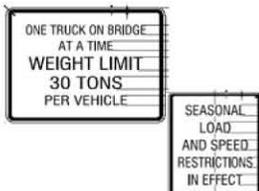
WI: R10-70 & 71

NM: SP-4

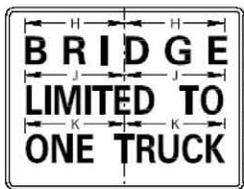
R12 - Weight Restrictions



FL: FTP-51-04 (plaque for Wt Lim sign)



MI: R12-7



PA: R12-1A



CA: SR27-1

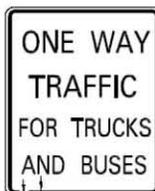
VT: VR-352A



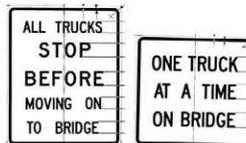
IL: R12-1105 & 106



MN: R12-X3 & X3a



OR: OR5-11



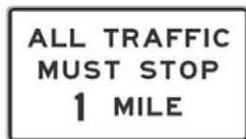
WA: R12-1001, 1101

WV: R14-2b, 2d, 2f

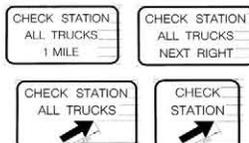
R13 - Weigh & Inspection Stations



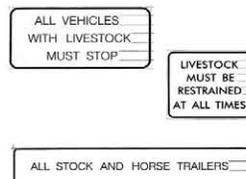
AK: R13-103



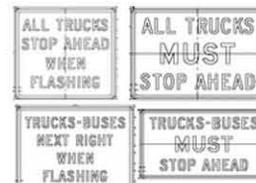
AZ: R13-5



NV: NCK-1 to 4



NV: NCK-6 & 7, NLR-1



TX: R13-1a&b, R13-1Ta&b

NM: R13-3

WV: R13-2, 2a to 2c

R14 - Truck Route



AK: R14-1A



Sacramento CA: photo



LA: photo



NY: R5-15

VT: VR-190



WI: R14-52



IL: R5-1101 & 102

R14 - Hazmat



CA: R104, R105 (hazmat)



Canada: RB-70, RB-69 (hazmat)



CA: R102, R103 (haz waste)

R14 - Jake Brakes, Noise



MT: R99-6



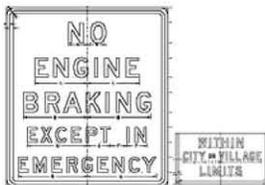
NV: NEB-1



NE: R42-1



OH: R-185, 186 (R16-H4, H5)



WI: R10-64 & 64F



UT: policy 06C-26



DE: photo



OR: OR22-10 & 11



CO: R2-7, 7a



IA: R5-7



ID: R5-201



WA: R4-604, 605



PA: R14-9 & 9A



ME: Tpkc



TAPCO: R3-18



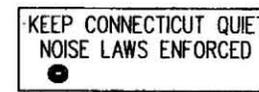
CO: R52-9 & 9a plaque



MO: special (locals only)



MN: R16-X13



CT: 51-5958

R15 - Trains



Canada: RR Crossbuck



NE: R8-8A



PA: R15-4 (used w crossbuck)



NY: R10-4



NY: R10-5 (Spec. Auth. 00-4)



Portland OR: photo



San Francisco CA: photo



IL: photo



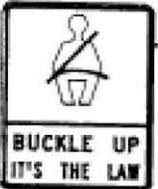
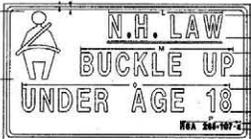
Naperville IL: photo



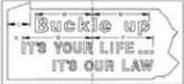
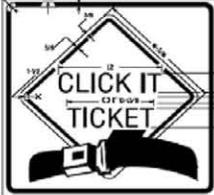
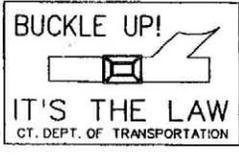
Sacramento CA: photo

R16 - Safety Regulations

Seat Belts - Using Standard Symbol

				
AL: R16-1a	FL: FTP-46-04	AZ: R16-1	MT: R16-1	CO: R16-1 & 1a plaque
				
OR: OR22-3	WA: R16-901	NE: R16-1	OH: R16-H2	
			"Seat Belt Required" (w/symbol)	
with plaque "Buckle Up Kansas Law"	CA: SR15 & SR15A	VT: VR-128	MA: R16-1	MD (Toll Auth)
KS: R16-1			"This Click Could Be (symbol) For Life! Buckle Up?"	
	WI: R5-53A	AK: R16-1	AZ: I60-1X	
NH: R16-1B1				

Seat Belts - Using Different Symbol

			
IA: R16-9	GA: R560-1	MO: R20-2	PA: I14-6 & 6A
			
TN: TN-30	TAPCO: B-1	NM: R16-2	CT: 51-5941
			
LA: photo	TAPCO: B-2	MI: I13-1	WV: I-31
			
		ID: R21-202A	

R16 - Safety Regulations (Cont'd)

Seat Belts - Using Words Only



NC: R5-17



SC: R22-1



MO: R20-1



IN : R16-Y2

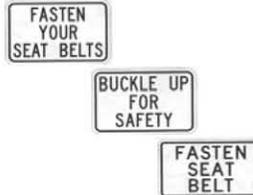


OH: R-159 (R16-H1)



ID: R21-2

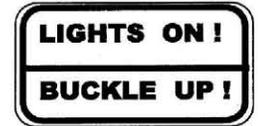
VA: VR-16



Tapco: B-3 to 5



MD: I95-10



USFS: FR20-1

Stop for / Do Not Pass Stopped School Bus (or When Red Lights Flash)



NY: R9-2



NJ: S(NJ)5-3



IN: SR5-Y1 & Y2



OH: R-84 (R16-H3)



MI: S3-2



TN: TN-20

AL: R20-8



MO: R11-10

VA: VR-8



IL: S4-I105



NC: R4-90 & 91



MD: S95-1, S95-2



IA: R16-5 & 5B

"State Law--Stop When School Bus Stops"
MA: R16-1a



NE: S6-1



MD: S95-2



CO: R10-50



MN: R16-X1



NM: R16-32

VT: VR-048



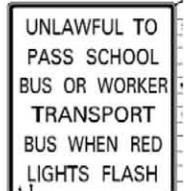
TAPCO: R59-51



WI: R59-51



PA: R16-1



OR: OR16-3

R16 - Safety Regulations (Cont'd)

Littering



AK: R16-106



AZ: R9-11 & 11a
+ plaque: "\$XXX Fine"



CA: R47



CO: R51-1, 2, 3



TX: photo



FL: FTP-41-04



MN: R16-X3

"\$10 to \$500 Fine for Littering Highways
KS: R5-11



ID: R21-1



IA: R16-3



ME: Tpkc



WA: I6-701

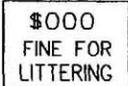
VA: VR-25



MD: D9-4(1)



MT: R10-11



CT: 51-5936 & 5938



NE: R17-1



NV: NNL-1



NH: R16-3B1



NC: R20-6



OH: R16-H7



PA: I14-3 & 4



SC: R18-1



TN: TN-13



NM: R16-25 & 25a



WI: R5-56



GA: R553-1

WV: R16-1

NJ: R(NJ)5-12

VT: VR-023B



NE: R17-2

AL: R20-7

"Rubbish Disposal Prohibited"
MA: R16-3a



NY: photo



Ontario, Can.: Rc-4a

R-XX - Other Regulatory Messages

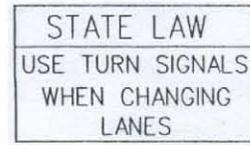
Use Turn Signals



MN: R16-X6



NE: R3-30



CT: 31-1926

VT: VR-002

NJ: R(NJ)33-1

Maintain Safe Interval



IA: R16-7



MN: R16-X2

WV: R14-2, 2a



TN: TN-11



WI: R10-62

"Trucks and Buses Stay XXXX Ft. Apart on Bridge"
NY: Spec. Auth. 85-18



OH: R12-H6

Use Headlights



GA: R554-1



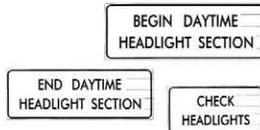
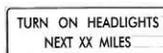
TN: TN-16

"State Law--Burn Headlights When Using Windshield Wipers"
NC: R5-20

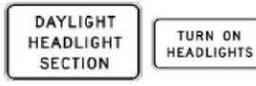
AL: R16-2



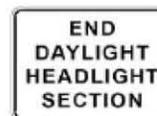
AK: R16-110



NV: NHD-1 to 4



CA: S30-1 to S30-3



VA: policy TE-287

CA: S30-4, 5



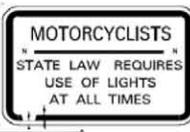
AZ: R31-8, 9, W4-20, 21



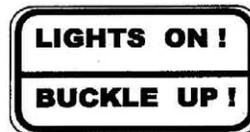
ID: I-35 to 37



NC: R5-15 & 16



OR: OR16-1 & 2, OR22-1



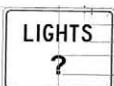
USFS: FR20-1



PA: I-13 & wz special



WA: I7-501 & 601



WI: R52-55



ID: R11-5 & 6



NE: R40-36



PA: I-13 (G20-10), G20-10-1 (orange)

R-XX - Other Regulatory Messages (Cont'd)

Authorized Shoulder Use



MN: R4-X7



WA: 18-501, 601

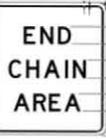
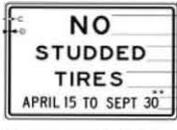


NY: Spec. Auth. 92-1, 92-2



NY: Spec. Auth. 92-3

Chains, Snow Tires, Studs

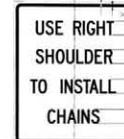
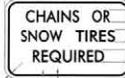
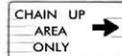


AK: R5-100, R12-103 to 108



"Chains or Snow Tires Required"
AZ: R17-1

CA: R74-76 & R78



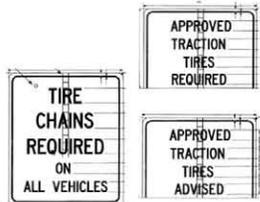
CO: R52-10 series

MT: R17-1

NV: NCS-1, NEV-1, NCA-1

UT

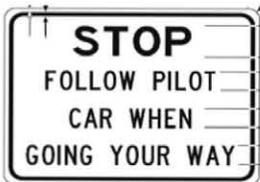
WA: R16-101-102



WA: R16-201, 2016, 2016

WA: R16-301, 601-602

Pilot Car & Flagger Regs



AK: R16-111



NV: NPC-1a



PA: R11-9

R-XX - Other Regulatory Messages (Cont'd)

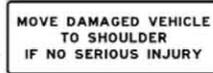
Move Accident Vehicles Off Roadway



CO: R52-6



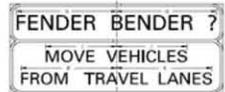
FL: FTP-27-04



TN: TN-49



NC: Policy #Q-1



PA: I85-1 (yellow top)



WA



MD: photo



WI: photo

Freeway Use Regulations



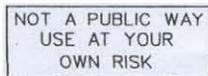
CA: R57, R58

OH: R5-H12 & 13

Private Road Regulations



CA: R101



CT: 51-1918

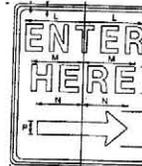
Enter Here



MA: R4-10RL (frwy on-ramp)



PA: R4-14

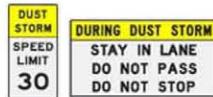


NH:

Other Miscellaneous Regulations



PA: R14-10,12,12-1,13



VT: VR-644



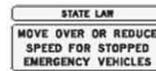
UT



NE: R40-31



WA: R10-701



NC: policy E-11



OH: R-190 (R16-H15)



OR: OR22-2



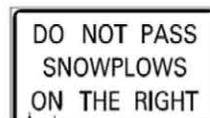
China: no cellphone while driving



VT: VR-173, 462



CA: SR20-1



OR: OR22-9



PA: R16-8

EXHIBIT B

WARNING SIGNS

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W1 - Horizontal Alignment

W1-1 Turn Warning Variants



AL: photo



CA: SW26



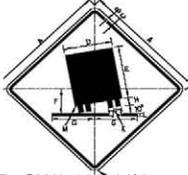
MD: W13-1(2)



MD: W13-1(2a)



Gainesville, FL: photo



OR: OW8-12 (shifting cargo symbol)



ID: W13-4



HI: photo



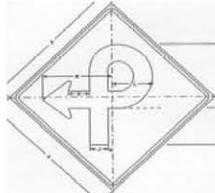
NY: spec auth 83-1



NV: photo



ME (Tpke)



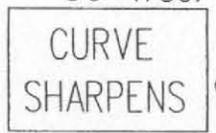
WI: W1-60



AR: photo

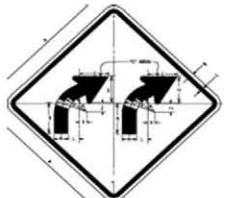


VT: VW-086



CT: 41-4024

W1-2 Curve Warning Variants



MI: W1-2RA



ME (Tpke)

W1-3 Reverse Turn/Curve Warning Variants



CO: W1-4a



NM: W1-10 R & L

Chicanes (Traffic Calming)



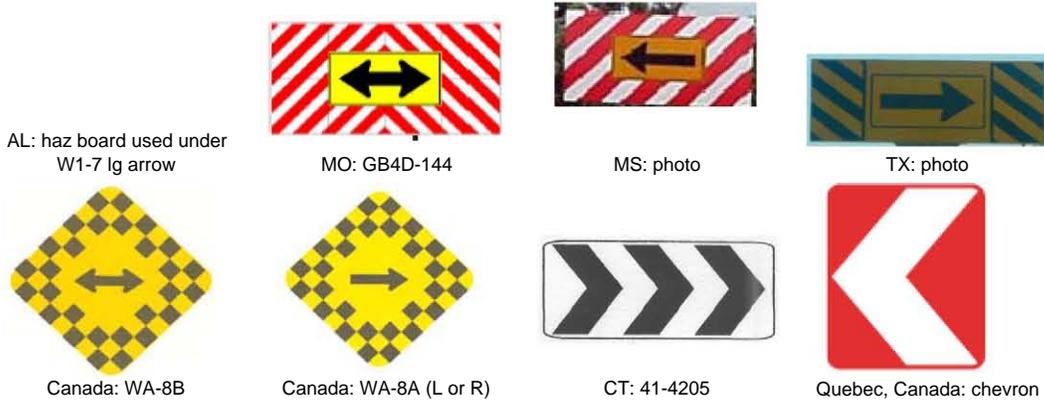
DE: Trf Calm Policy



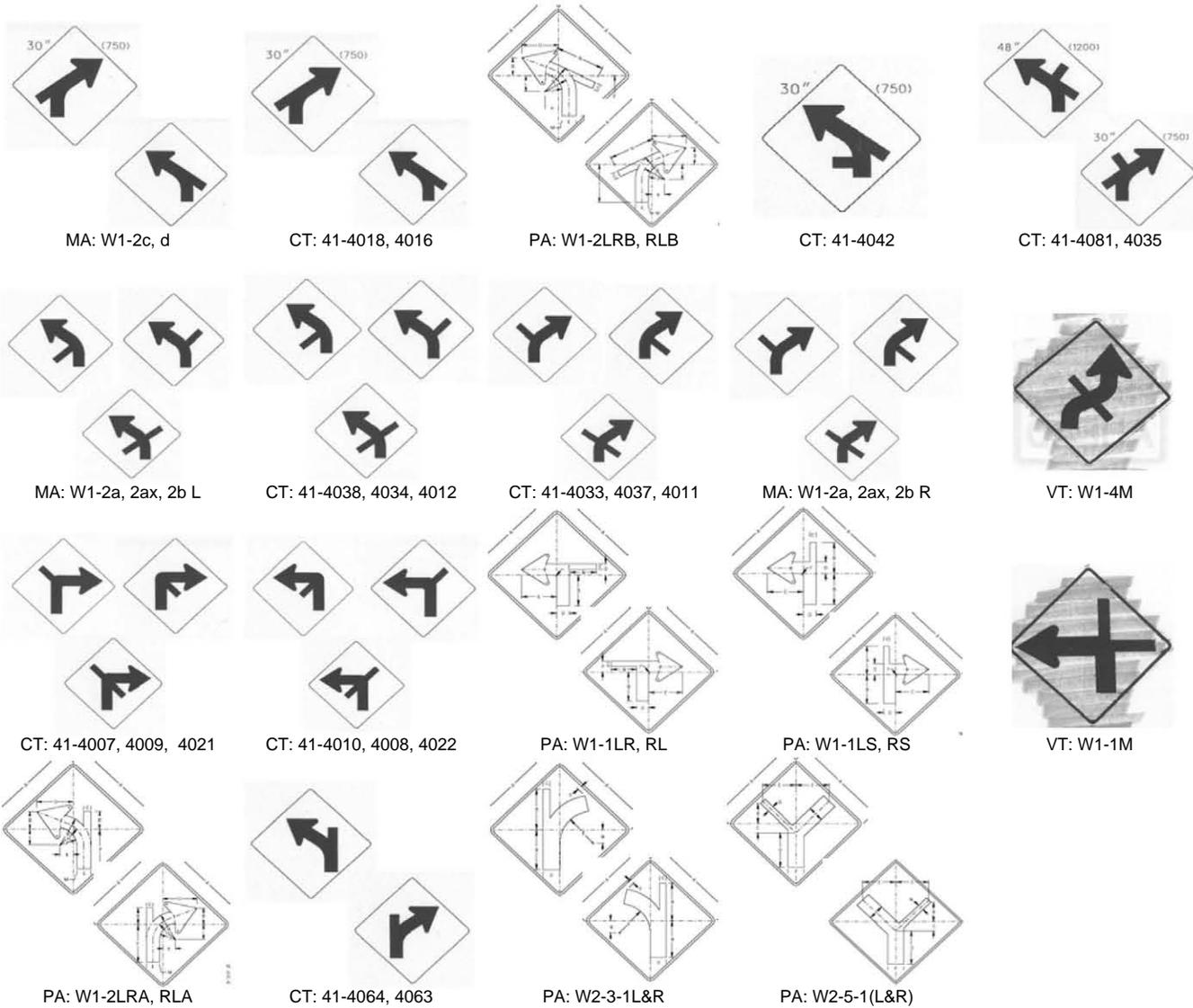
Davis, CA

W1 - Horizontal Alignment (Cont'd.)

W1-6, W1-7, W1-8 Large Arrow & Chevron Variants



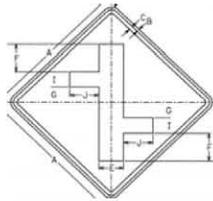
W1-10 Combination Horizontal Alignment/Intersection Warning Variants



W2 - Intersection Warning

W2-1 Crossroad Variants

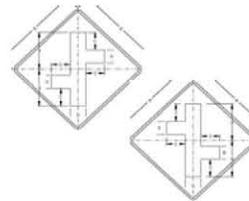
Offset Sideroads



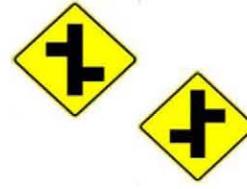
GA: W552-1 & 2 (L & R)



NY: W2-10, W2-11



PA: W2-1-1L&R



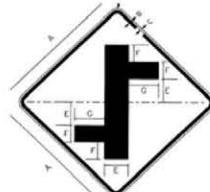
TN: TN-27a, 27b



MN: W2-1a (R or L)



MA: W2-6a



MD: W2-2(1)



NE: W2-6A



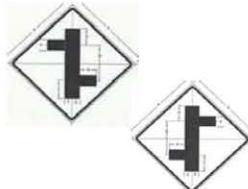
MA: W2-6



CT: 41-4233, 4234



OH: W-24a (W2-H1aR&L)



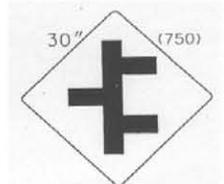
WV: W2-1a, 1b



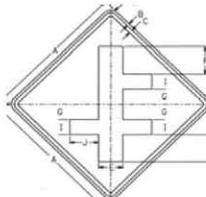
VT: W2-1M



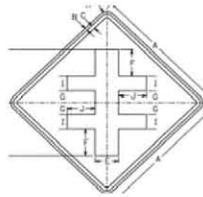
CT: 41-4240



CT: 41-4230



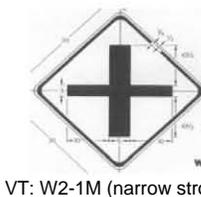
GA: W552-3 & 4 (L & R)



GA: W552-6



WI: W2-50, 50P (skew or 90 degree)



VT: W2-1M (narrow stroke cross street)

Other Crossroad Related

"Highway Intersection XXXX Ft"

TX: W2-6B



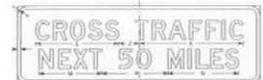
CT: 41-4875



CA: W70



NV: NCT-1



WI: W6-53



CT: 41-4635



NH: W14-B1

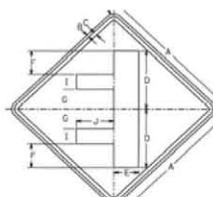


"Cross Traffic" IL: W16-1100

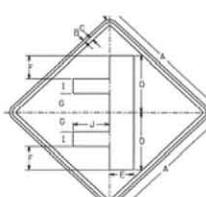
VA: photo

"Watch for Entering Traffic" MI: W11-16

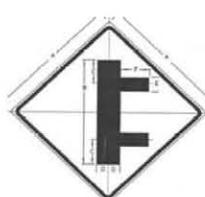
W2-2, W2-3 Side Road Variants



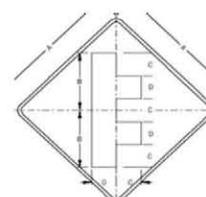
GA: W552-5



IL: W2-1100



WV: W2-1c



PA: W2-2D R&L



VT: W2-2M (narrow stroke side rd)

W3 - Advance Traffic Control Warning

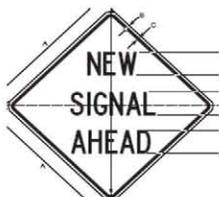
New or Changed Signal or Traffic Pattern



AK: CW3-3P



MI: W3-3 Mod



WA: W20-902 (orange)



OH: OC-61 (W3-H11)



CT: 41-0820



NC: photo



ID: W3-301a



BC, Canada: C-064



OH: W-173, 174 (W3-H9, H10)



WA: W20-903 (orange)



AZ: W32-1AZ



OR: W20-10 (yel or orange)



AK: CW3-100; DE: photo



VA: photo



MD: G95-24



PA: W14-8 (yellow)



BC, Canada: C-063



WA: W20-901 (orange)



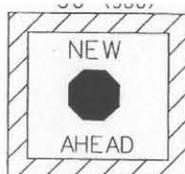
BC, Canada: C-066



PA: W3-3-3 (yellow)



MD: D95-25



CT: 41-0520



NM: photo



Canada: WB-12T



Ontario, Can.: Wb-3

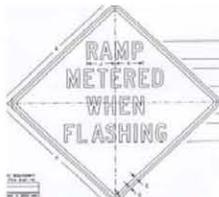
Ramp Metering Warning



AZ: W3-30AZ



TX: W19-3



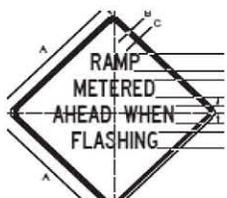
WI: W3-50



NE: W40-62



Ontario, Can.: Wb-7



WA: W3-501



MN: W3-X1 & X2

"Ramp Signal Ahead"
TX: W19-4

"Ramp Signal"
IL: W3-1101 (plaque)

W3 - Advance Traffic Control Warning (cont'd)

Prepare to Stop When Flashing



MD: W3-3(2)



NE: W41-7



Canada: WB-5 Option + WB-5S



MI: W3-4B



NE: W20-8B & C



NV: NWF-1



Tucson AZ: SPW03-01



MN: W3-X4



OR: OW15-14



VA: photo



MD: W3-3(3)



HI: W3-4



CT: 41-0534

Weight Restriction or Weighing Ahead



MN: W14-X3



ID: W8-15B



CA: W20, W20A

AL: W38-1

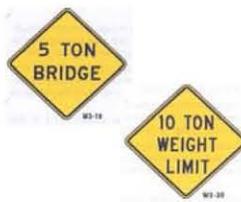
"Load Zoned Bridge"
TX: W12-5



AK: W12-101



NH: W12B-1



NY: W3-19, W3-30



PA: W14-9

AL: W38-2



OR: OW7-5



NY: W7-2, W7-3

"Weigh Station X Mi"
TX: W20-1, 2

No Merge Area



MD: W4-3(1) plaque w Yield sign

"No Merge Area"
OH: W23-H2



ME (Tpke): plaque used with Yield sign



FL: special

W3 - Advance Traffic Control Warning (Cont'd.)

Signal Ahead - Other



WA: W3-401



NJ: W(NJ)5-6A



Canada: WC-11 (drawbrg)



Mexico: SP-22



OR: photo



NJ: W(NJ)3-5



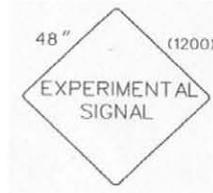
MA: W3-5a (blankout "red")



DE: photos



FL: photo (Turbo T)



CT: 41-0811

Advance Warning of HOV & Other Restricted Lanes



CA: SW54, SW54-21



Canada: WB-8



Canada: WB-7

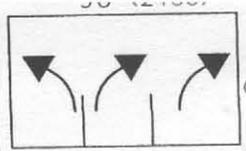


BC, Canada: W-140



Quebec, Can.: Restr bike lane

Advance Warning of Lane Must Turn or Exit



CT: 41-4242 (yel)



Quebec, Can.: adv wrng of lane use regs



GA: photo



VT: VW-143



CA: W73A



Los Angls, CA: RLMTR

CT: 31-0114, 0171



AZ: W6-5d



CA: W73



HI: W18-1 (yel)



GA: W553-7 (yel)



CT: 41-4420 (yel)

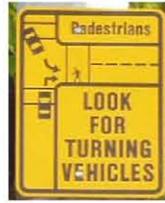
W3 - Advance Traffic Control Warning (cont'd.)

Advance Warning of Other Traffic Controls



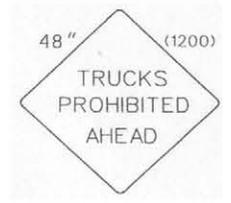
PA: W3-4 (yellow)

"Police Officer Ahead (orange)
MA: W20-8

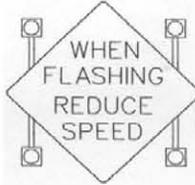


WA: photo

"Watch for Turning Vehicles on
Walk Signal"
MA: W11-20



CT: 41-1065



CT: 41-5552



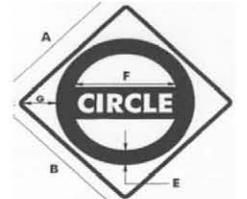
NV: NWF-2



VT: VW-440P



MA: W3-4



NJ: W(NJ)2-6



NE: W40-63

W4 - Traffic Flow Warning

Merge Warning Specific to Thru Traffic



AK: CW4-1A



HI: W9-3



CA: photo



WI: W4-1a



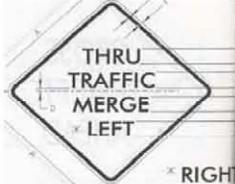
AZ: W9-2aAZ (R or L)



NE: W4-1A



NM: W4-1a (R or L)



NV: NTM-1



TX: CW4-1a



OH: W4-1a R&L



MN: W4-1a (R&L)



MN: W20-X12

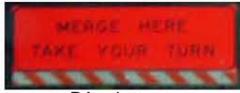


OH: OW-160 (W1-H4p)

Other Merge Warnings



CT: 41-4436, 4437



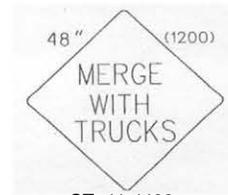
PA: photos



CT: 41-4486



CA: W59-1



CT: 41-4406



FL: MOT-8-04 (orange)



MI: W11-16



IA: custom



MN: W20-X3

"Squeeze Right (or Left)"

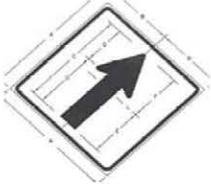
MA: W30-8 (orange)



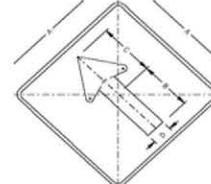
OH: W138 (W1-H11)



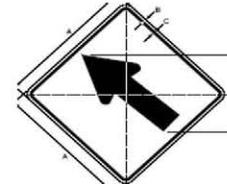
MA: W1-4b, W1-10



WV: W22-8



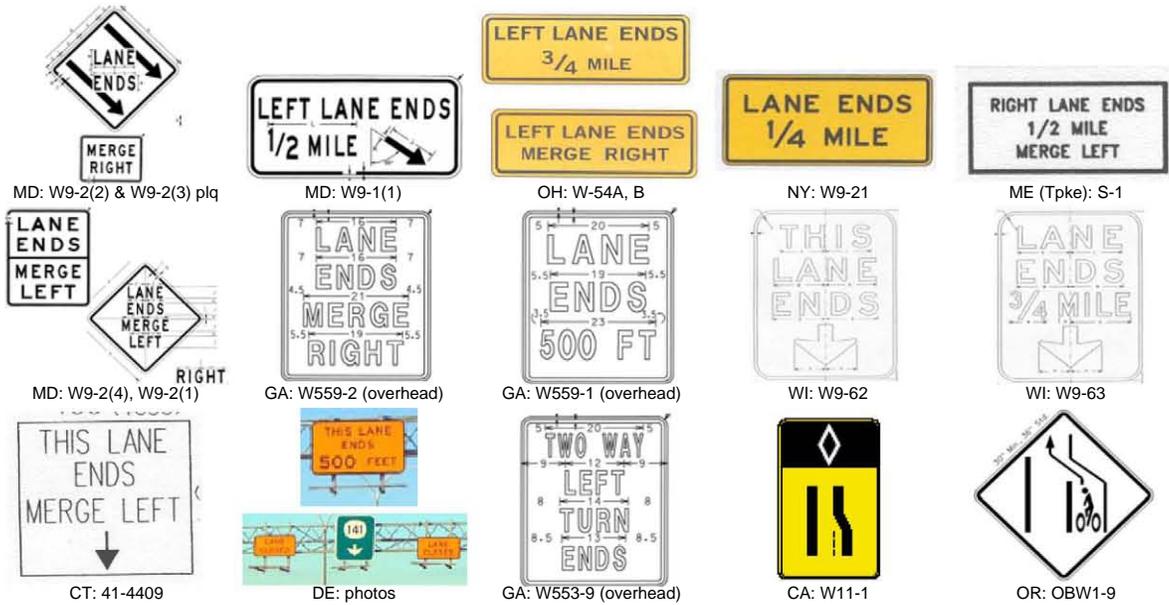
PA: W20-8 (orange)



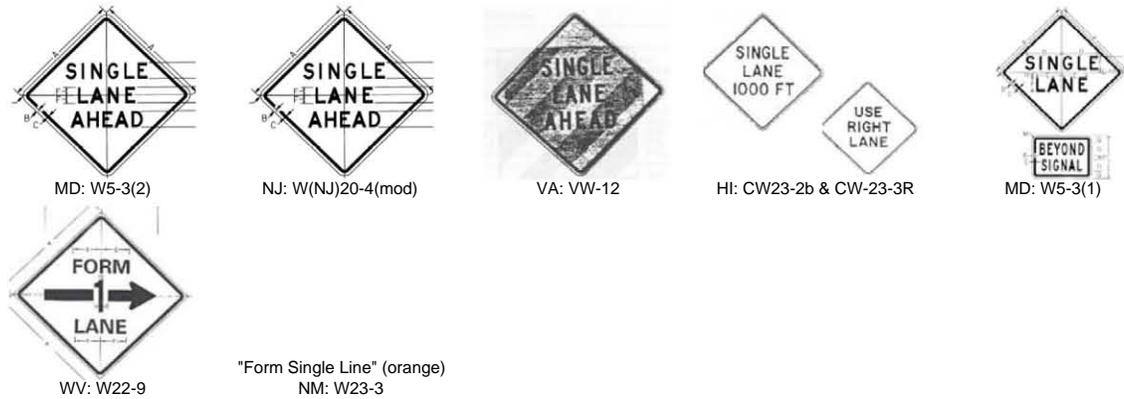
WA: W2-401

W4 - Traffic Flow Warning (cont'd)

Lane Ends



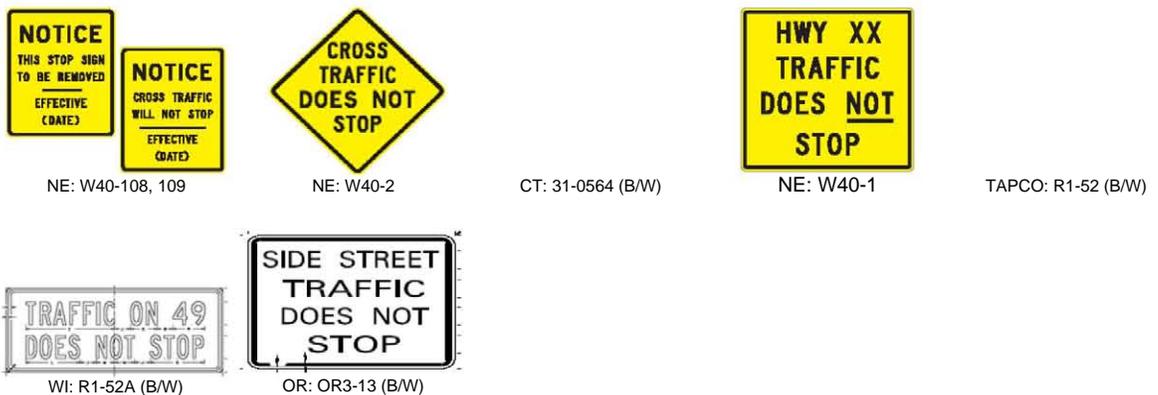
Warning of Single Lane Ahead



W4-3, W4-6 Added Lane Warning Variants



W4-4 Traffic Does Not Stop Variants



W5 - Road or Bridge Narrows

W5-1 Road Narrows Variants (Shoulder)



AK: W5-1A



MN: W5-X1



Tucson AZ: SPW05-01



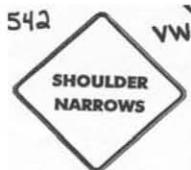
NV: NSN-1



TN: TN-35



OH: W5-H6p (used with W11-14)



VT: VW-619



WI: W8-57



IA: custom



OH: W-153 (W5-H5)

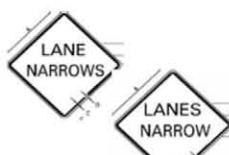
W5-1 Road Narrows Variants (Lane(s), Road, Ramp, etc.)



MN: W20-X17



PA: W5-4-1 (ahead or dist.) (orange)



OR: CW23-4, 23-5 (orange)



VT: VW-478

"Narrow Lanes Ahead"
TX: CW20-8 (orange)



CA: C12



VT: VW-213



PA: W5-1-1



VT: VW-256



USFS: FW8-6c



USFS: FW8-6a



USFS: FW8-6b



AK: W5-4



VT: VW-268



Mexico: SP-24

Actual Width Dimension



NE: W40-73



WI: W12-52



Tapco: W12-52



MN: W20-X11



OR: CW21-12 (orange)

W5-2, W5-3 One Lane Bridge Warning Variants



ID: W5-3



PA: W5-3B



HI: photo



AZ: W5-6, W5-5



CT: 41-4407



PA: W5-3A



NY: W3-15



VT: VW-353



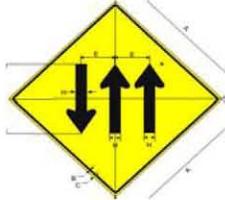
USFS: FW8-9b



USFS: FW8-1a

W6 - Divided Highway / 2-Way Traffic

2-Way Traffic Symbol Variations



AK: W6-100



HI: photo



VT: VW-029



Canada: WB-3

Islands



WV: W6-4



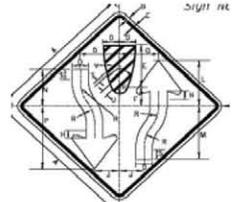
TX: W2-8



CT: 41-4629



SC: photo



OR: OW6-6 (for flush med.)

One Way Warnings



MO: W5-4



NE: R6-5

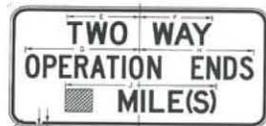


MA: photo

Misc.



MA: photo



OH: OC-61 (W3-H11) (orange)



KY: photo



CA: W83 (used with W6-3)

W7 - Hill, Truck Escape

W7-1, 2, 3 Hills & Grades

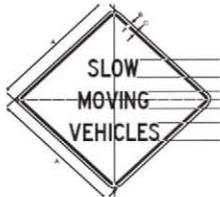
Uphill - Slow Traffic, Slow Trucks, etc.



AK: W7-100



PA: W14-12



WA: W14-601



MN: W14-X2



NJ: W(NJ)7-5



OR: OW7-4



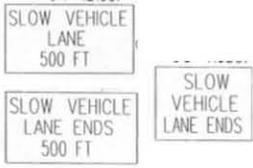
CA: W51



NE: W25-5B



NY: spec auth 95-11



CT: 41-1507, 1509, 1510



CT: 41-1508, 1504



CT: 41-4659, 4660



OR: OW15-5



USFS: FW11-7

Uphill - Other Warnings



CT: 41-4509



NJ: W(NJ)7-6



WI: W7-61

Downhill Warnings



MA: W7-6



CT: 41-4510



VT: VW-516P



ME (Tpke): TOL-5



MD: W7-1(1)



CT: 41-4544



CA: SW4-1



NC: photo

W7-4 Truck Escape



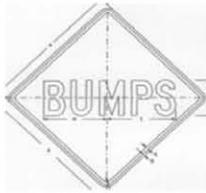
CA: W30B

W8 - Roadway Surface Condition

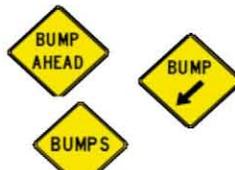
W8-1, 2, 3 Bump, Hump, Dip



AK: W8-1A



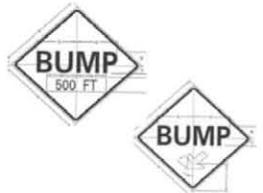
WI: W8-1A



MN: W8-1a, 1b



NE: W8-1A, B, E



WV: W8-1M, W8-1aM



Canada: WA-22 (bumps or humps)



Sacramento, CA: photo



NPS: TR-067



DE: Trf Calm Policy



Sacramento, CA: photo



Unknown location: photos



DE: Trf Calm Policy



VT: VW-027



PA: W11A-3



MD: W96-6



MD: W96-6(1)



TX: W19-6T



USFS: FW14-6



CO: W11-54



Tucson AZ: SPW11-02



BC, Canada: W-046



NV: NCG-1



NM: W11-4a



AK: W8-2A



Quebec, Canada: Dip

Road Damage, Cracks, Rough, etc.



ID: W8-14



CT: 41-4515



ME (Tpke)



VT: VW-663



HI: photo



AK: CW8-8A



NC: W8-13



WA: W8-2201



BC, Canada: C-011



OR: OW8-11



VT: VW-487



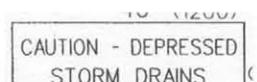
NE: W40-94



DC: photo



ID: R16-5, 6, 4



CT: 41-4650

W8 - Roadway Surface Condition (cont'd.)

Low (or High) Shoulder, Shoulder Drop-off



DE: W8-9a



MI: W8-9B



NM: W8-9a



MT: W8-9b



OH: W-151A



Alberta, Canada



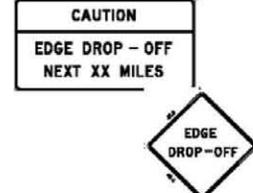
NV: NSD-1 shldr dropoff



Canada: TC-49 (uneven lanes or shldr dropoff)



NE: W8-13



OK: const # 8, 11 (orange)



WA: W21-801 (orange)



ID: W21-7



OR: CW21-7



MN: W21-X9



MD: W8-8(2)



NV: NUL-1a,b uneven lanes



Ontario, Can.: TC-24 (uneven lanes)

Shoulder Ends, No Shoulder



AK: CW8-9B



WA: W8-1801



NY: W4-13



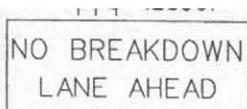
MN: W21-X1



NE: W40-8



MA: photo



CT: 41-0115

W8 - Roadway Surface Condition (cont'd)

Avalanche, Rocks, Slides

Symbols



CA: W50-1



MT: W8-11A



NM: W24-1a



Mexico: SP-30



Unknown loc.: photo



VT: VW-285



NPS: RS-008



Canada: WC-6 (fallen rock or slide)

Falling or Fallen Rock



15 States+ USFS (listed below):

CT: 41-4615
CO: W8-52
IA: W23-1
MA: W14-6
MD: W96-2
MO: W14-4
NV: NFR-1
NJ: W(NJ)27-1

NM: W24-1
NC: W8-12
OH: W139-F(W8-H19)
PA: W8-13
TN: TN-15
TX: W19-10
WV: W8-13
USFS: FW14-8



MN: W14-X1



VT: VW-444

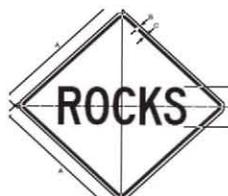


NY: W4-14

Rocks - General



AK: W16-105



WA: W8-1701



OR: OW15-3



ID: W8-9



AZ: W7-34AZ

Sand, Mud on Road



ID: W8-8



CA: SW32



NC: W8-7a



TX: W19-5



ID: W8-801



"Watch for Mud on Road"
TX: W19-15



PA: W8-20



PA: W8-20-1

W8 - Roadway Surface Condition (cont'd.)

Avalanche, Rocks, Slides (cont'd.)

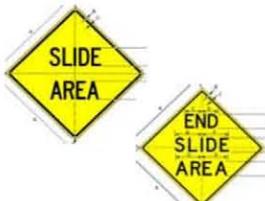
Slides, Avalanches



AZ: W7-11



CA: W38



AK: W16-100, 101



NE: W40-121

AL: W23-1, W23-2



WA: W8-1901



BC, Canada: W-032, 033



CO: W8-51



MT: W8-10



NM: W24-2



ID: W8-901, W8-10



NC: W8-14



OR: OW15-19



NY: W4-15

AL: W31-2

TX: W19-12



CA: W50



OH: W-139 (W8-H20, H21)



VT: VW-248

AL: W31-1

TX: W19-11



ID: W8-22



CO: W12-53



AK: W16-110, 111



AK: W16-112



BC, Canada: W-106

W8 - Roadway Surface Condition (cont'd.)

Water on Road, Flooding, etc.

Subject to Flooding, May Be Flooded, Watch for Water, etc.



CA: SW35



AZ: W8-30AZ



NV: NFF-1



MD: W96-4



NE: W40-98



NJ: W(NJ)8-12



CA: W55B



MN: W8-X2



BC, Canada: W-121



NC: W14-6



OK: const sign 7 (orange)



PA: W8-18



CT: 41-4602



ME (Tpke)



AZ: W8-33

"Watch for Water on Road"
TX: W8-15



WI: W8-65



NM: W24-11



AZ: W8-32



MO: W18-1



USFS: FW14-7b



GA: photo



HI: photo

Low Water Crossing



NE: W40-97



OK: const sign 10 (orange)



WV: W8-15, 15a



USFS: FW14-7



Mexico: SP-26



Ontario, Canada



USFS: FW14-7a

"Water Crossing"
NM: W24-10

"Water Crossing"
TX: W8-13

W8 - Roadway Surface Condition (cont'd.)

Water on Road, Flooding, etc. (cont'd.)

Actually Flooded



NY: W4-9



AZ: W8-31 (orange or yel)



BC, Canada: C-059



DC: W21-8



CA: W55



IA: W26-2A



ID: W8-7



CT: 41-4616



NE: W15-5



NM: W24-9



AK: W16-103



WA: W8-1501



MT: W8-13



IL: photo



NM: W24-7



WV: W8-11



USPS: FW8-7a



WI: W8-58



Tapco: W16-5



OH: W-74 (W8-H17)



IN: W8-Y7



NC: W14-5



OR: OW15-12



VA: VW-11



NM: W24-8



NM: W24-6

Water Depth Gauges for Roadway Flooding



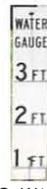
WV: XS-10



USFS: water depth gauge



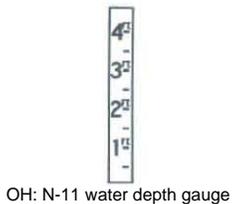
VA: VW-16



MO: W19-1



TX: D26



OH: N-11 water depth gauge

W8 - Roadway Surface Condition (cont'd)

Icy Conditions Actually Present - General



NV: NIC-1



CA: W43



NM: W24-12



CO: W8-50



MT: W8-10C



NE: W15-3



MT: W8-12B



VA: VW-10



MT: W8-12A



NY: W4-10



OR: OW15-13



USFS: FW8-7b

"Ice on Pavement"
IL: W8-1101



VT: VW-347



CT: 41-4516

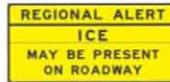
Ice May Be Present - General



NE: W40-47G, W15-2



Canada: WC-23



AZ: W4-6z & W7-14y



PA: W8-21

"Slippery When Wet or Icy"
IL: W8-1109



WA: W8-1601



AK: W16-102



PA: W8-19



ID: W8-6



NV: NIC-2

No Salt/Reduced Salt, No Winter Maintenance



NE: W40-122



NE: W40-53



MA: W17-2a, 2b, 3, 4 (also "End of Reduced Salt Area")



VT: VW-129



VT: VW-095



VT: VW-149



VT: VW-290



PA: W14-5



WI: W8-62

W8 - Roadway Surface Condition (cont'd.)

Bridge May Be Icy



ID: W8-16A



MI: W8-6A



NV: NIC-3



PA: W8-12-1



WI: W8-64



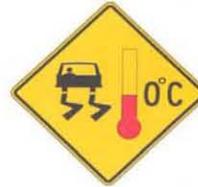
CO: W8-50a



NE: W40-47E



PA: W8-12-2



Canada: WC-23



WV: W8-14



IL: W8-1102



MT: W8-10D



Tapco: W16-6



IN: W8-Y8



OH: W-68 (W8-H22)



TX: W19-2



GA: W560-1 (photo)



SC: W8-12



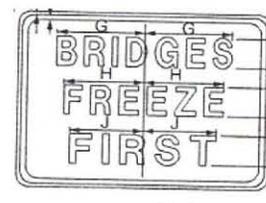
CT: 41-4549



NJ: W(NJ)8-5A



VT: VW-005



NH: W5B-2

Snow Conditions



ID: W8-24

"Blowing Snow"
NM: W24-15



CA: SW46



CA: SW41



ID: W21-17

Snowplow Operations Warning



NM: W24-13



BC, Canada: C-060



CA: SW58



VT: VW-465

W8 - Roadway Surface Conditions (cont'd.)

Warnings Intended Primarily for Motorcycles

Grooved Pavement



OR: OW8-13



VT: VW-397 (used with "Grooved Shldr" plaque VW-396P)



Canada: TC-47 (grooved, milled, or textured)



Ontario, Can.: TC-19 (grooved or milled)



CA: SW35



MI: W8-11



MN: W8-X3



NY: W4-5



CT: 41-4513



IL: W8-1105



OH: W-58 (W8-H15)



OR: CW8-13 (orange)



WA: W8-2001



WI: W8-52



BC, Canada: C-048



MD: W8-8(1)



NV: NGP-1 (orange)



CO: W20-52



CT: 41-4514



NJ: W(NJ)8-14



TX: CW8-8T



PA: W8-14



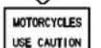
VA: VW-8



ME (Tpke): CS-20



OK: CW8-12A, 12S (orange)



"Roughly Grooved Surface"
IL: W8-1107



MD: W8-8(3)



FL: FTP-29-04



Unknown loc.: photo

Textured or Milled Pavement



NE: W8-13B



NE: W40-95



TX: photo



ME (Tpke)



ME (Tpke)

W8 - Roadway Surface Conditions (cont'd.)

Warnings Intended Primarily for Motorcycles (cont'd.)

Bridge Decks and Joints



CA: SW28



NY: W4-6



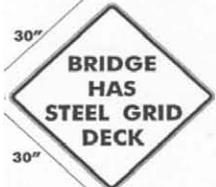
CT: 41-4522



WI: W8-63



VA: policy memo T&S-159



NJ: W(NJ)5-5A



CT: 41-4524



OR: OW17-2



BC, Canada: W-114, 114T



OH: W-59



WA: W8-2101



MA: photo



PA: W8-16



VT: VW-562P



MD: W96-3



VA: policy memo MM-328



VA: policy memo MM-326

Rumble Strips



OH: W-172 (W80H16)



PA: W8-15-1



PA: W8-15



Tucson AZ: SPW07-01



Alberta, Canada



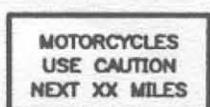
ME (Tpke)

"Rumble Strip Area XXXX Ft."
MA: W8-1b

General and Other Warnings to Motorcycles



WA: W21-1701



ME (Tpke): CS-21



VT: VC-004

"Cyclists Use Caution"
IL: W14-1100



DC: photo

W10 - Railroad Warning

For Bikes & Motorcycles - Skewed Crossing



AK: W10-100



WA: W10-101P (plaque w W10-1)



TAPCO: W11-59



WI: W11-59, 59P



VT: VW-304



VT: VW-376



OR: OBW8-20



OR: OBW8-19L



NC: photo



Unknown loc.: photo



PA: W10-1B (yellow)



NC: policy B-7 (plaques w W10-1)

Uneven or Rough Tracks



TX: W10-6
OH: W66 (W10-H12)



VA: VW-6



NE: W8-8C



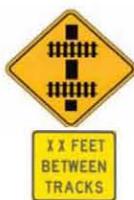
NM: W10-8

"Rough Crossing"
KS: W8-6A

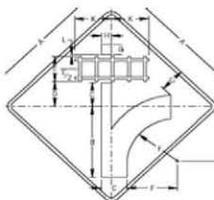
W10-1 Variants



MT: W10-5A, B



IN: W10-Y11C, Y11D



PA: W10-6, 6A



Canada: WC-4



Mexico: SP-35

Other



CT: 41-2231



CT: 41-2217



WV: W3-4



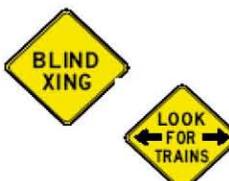
CA: W48 (plq w W10-1)



VT: VW-635 L&R



NE: W10-6



MN: W10-X2, X3



FL: FTP-61-04 & 62-04



IN: W10-Y12



CA: W82 & W82-1

W11 - Advance Crossing Warnings

Vehicular Traffic Crossings

Crossings of Specific Vehicle Types - Trucks



CA: photo



Canada: WC-8 (truck entr.)



Ontario, Can.: Wc-8R



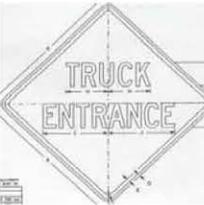
MD: W11-10(1)



BC, Can.: W-317, W316 L&R



OR: OW15-4



WI: W54-57



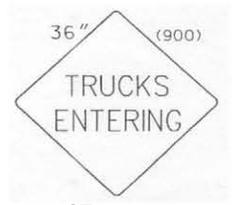
NM: W24-18 (yellow)



OK: W8-6BS



VT: VW-202



CT: 41-4622



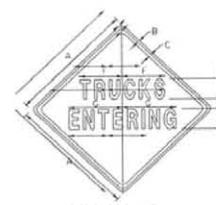
MN: W11-X3



MT: W11-15



ME (Tpke): CS-10



NH: W14B-3



CO: W12-54



FL: MOT-5-04 (orange)



ID: W11-601b



NC: W14-12



WA: W21-30 (orange)



Tapco: W42-7



AL: W8-6a



VT: VW-081, 084

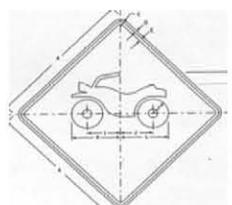


MA: W16-5 (R or L)

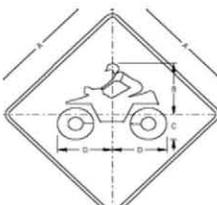


CT: 41-4618

Crossings of Specific Vehicle Types - ATV, Off-Road Vehicles, Motorcycles



WI: W11-15 (ATV)



PA: W11-6-1 (ATV)



NPS: RS-095 (ATV)



TAPCO: W11-15 (ATV)



ID: W11-701b



NY: W5-18 (motorcycle xing)



USFS: FW11a-1 (motorcycle)



NPS: RS-065 (motorcycle xing)



NPS: RS-067 (off-rd veh)



CA: SW47

Vehicular Traffic Crossings (cont'd)

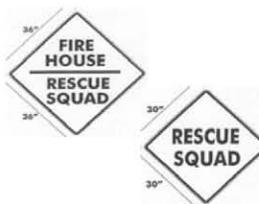
Crossings of Specific Vehicle Types - Emergency Vehicles



AK: W11-8A



WA: W15-201



NJ: W(NJ)11-8A, 8B



VA: VW-26



VT: VW-529



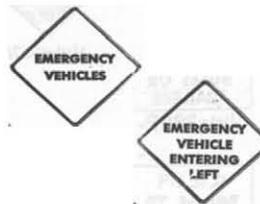
PA: W11-8-2



MI: W20-4C (orange)



TX: W111-11



VT: VW-544 & 544R,L



MI: W11-15



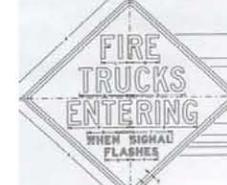
Tapco: W54-60



GA: photo



Los Angl, CA: photo



WI: W54-60



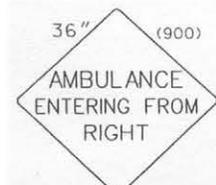
MD: W96-7(1)



NJ: W(NJ)11-8F



NE: W26-3



CT: 41-4619



Canada: WC-17



Ontario, Can.: Wc-25

Crossings of Specific Vehicle Types - Other Misc.



NY: spec auth 95-10

"Buses Entering When Flashing"
VT: VW-206



PA: W11-27



PA: W11-10-1

Warning of Possible Stopped Traffic Ahead



NE: W25-5



PA: W14-7



WV: W22-13 (orange)



OH: W-166 (W3-H7)



IL: W5-1100



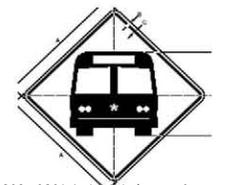
NYC: photo



NYC: photo



CT: 41-4603



WA: W14-1101 (transit stop ahead)

W11 - Advance Crossing Warnings (cont'd)

Vehicular Traffic Crossings (cont'd)

Warning of Turning Traffic Ahead - General



VT: VW-205



VA: VW-1



NE: W25-7B



VT: VC-001

"Turning Vehicles Ahead"
MA: W18-3



VT: VW-094



IA: custom



ID: W9-4b



PA: W11-21-2



PA: W11-21-1



IN: W2-Y7

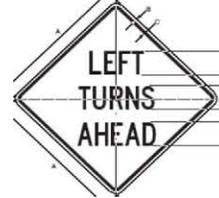
"Watch for Left Turning Vehicles"
VT: VW-498



MD: W96-5



MA: photo



WA: W2-601



VT: VW-383P



VT: VW-536



PA: W11-21



NH: W14B-2

Warning of Turning Traffic Ahead - Trucks



NM: W24-17



VT: VW-244



IA: custom



NE: W25-7, 7B



NE: W25-7C, D

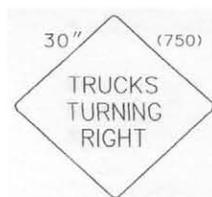
AL: W8-6b



WA: W21-30A (orange)



FL: MOT-7-04 (orange)



CT: 41-4626

Warning of Turning Traffic Ahead - Buses



MA: W15-5, W15-6, W15-7 (various arrows)



NY: W9-25

"Buses Turning"
VT: VW-426

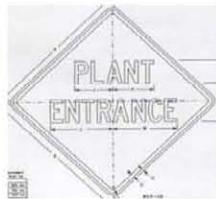
W11 - Advance Crossing Warnings (cont'd.)

Vehicular Traffic Crossings (cont'd.)

Warnings for "Entrances" (or Exits) - Factories, Plants, Industrial



WV: W16-1



NM: W24-23



PA: W11-12



WI: W54-56

AL: W30-1



Tapco: W54-56



NE: W40-112



MI: W11-11



ID: W11-12



VT: VW-366



CT: 41-4661



VA: VW-2

Warnings for "Entrances" (or Exits) - Theaters



IL: W11-11



MA: W16-4



WI: W54-54



Tapco: W54-54



VA: VW-5

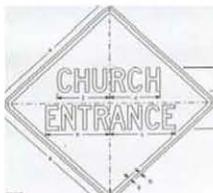


WI: W56-51



Tapco: W56-51

Warnings for "Entrances" (or Exits) - Churches



WI: W54-58



Tapco: W54-58

"Church (or Temple) Entrance
Right (or Left)"
MA: W16-6, 6a R&L



CO: W15-51



TX: W19-8



Tapco: W39-3



IN: W15-Y2

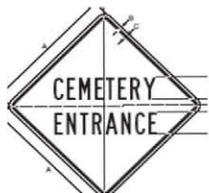


PA: W11-17

W11 - Advance Crossing Warnings (cont'd)

Vehicular Traffic Crossings (cont'd)

Warnings for "Entrances" (or Exits) - Cemeteries



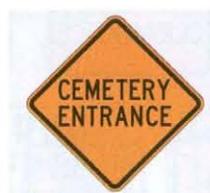
WA: W11-1301



PA: W11-14



WI: W54-53



Tapco: W54-53



MA: W11-16



CT: 41-4636



CO: W15-52

Warnings for "Entrances" (or Exits) - Parks



WI: W54-51



Tapco: W54-51



PA: W11-13



CT: 41-4630

"Park Entrance XXX Ft"
VT: VW-163

Warnings for "Entrances" (or Exits) - Hospitals



WI: W54-59



Tapco: W54-59



CT: 41-4640



TX: W19-7



NE: W25-14



PA: W11-16



IN: W15-Y3



CO: W15-50

AL: W37-1



WA: W15-301



CT: 41-4644



CT: 41-4641



VA: VW-4 (for quiet zone)

Warnings for "Entrances" (or Exits) - Airports and Military



WI: W54-52



Tapco: W54-52



NM: W24-24



TX: W19-9



WI: W54-55

W11 - Advance Crossing Warnings (Cont'd.)

Vehicular Traffic Crossings (Cont'd.)

Warnings for "Entrances" (or Exits) - "All Purpose" and Other



IN: W11-Y12 (various)



OH: W-75 (W11-H13) -- park, truck, church, plant, hosp, any other



IL: W16-I101 (various)



(also Park, Driveway(s), Plant, Shopping Center) - plaques used with cross rd & side rd symbol signs
NY: W5-16, 17, etc.



IL: W11-13a



AZ: W31-1AZ



VT: VW-061



VT: VW-344



VT: VW-437



PA: W11-15-1



CA: SW50



PA: W11-15

"Camp Area Ahead"
VT: VW-377

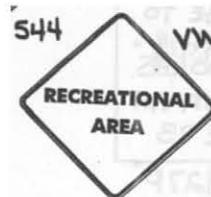


CT: 41-2145

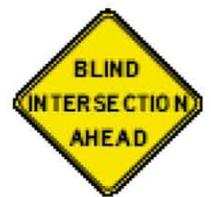


CT: 41-4637

"Recreation Center"
VT: VW-207



VT: VW-622



MN: W2-X1



PA: W11-19



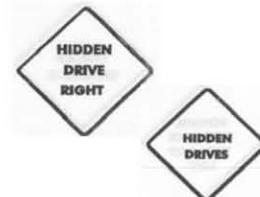
PA: W11-19-1



AK: W7-102



NJ: W(NJ)25-1



VT: VW-054, 133, 060

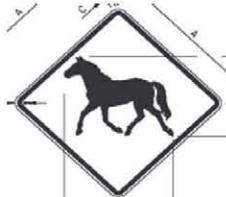
W11 - Advance Crossing Warnings (cont'd)

Non-Vehicular Crossings - Animals

Horses, Burros, Donkeys



AK: W11-7 (horse)



AZ: W11-7bAZ (horse)



NY: W5-11 (horse)



VT: VW11-7A (horse)



AZ: W11-7aAZ (horse/cowboy)



NH: W11B-4



PA: W11-20



HI: photo



IA: custom



OH: W-179 (W11-H14a)



NV: NBU-1 (burro)



AZ: W11-3c (burro)



HI: photo (donkey)

Moose, Elk, Caribou, Antelope



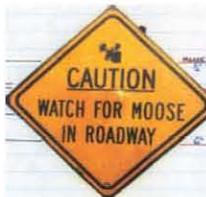
AK: W11-103 (moose)



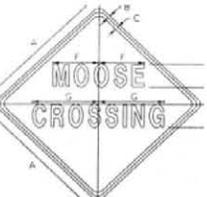
Canada: WC-14 (moose)



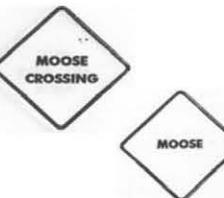
BC, Canada: W-063 (moose)



ME (Tpke)



NH: W11B-5



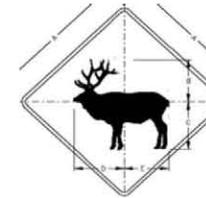
VT: VW-000, 001



NV: NEK-1 (elk)



AZ: W11-3a (elk)



PA: W11-3A (elk)



NM: W11-3a,b (elk)



AK: W11-104 (caribou)



Newfoundland, Canada: photo (caribou)



NV: NAN-1 (antelope)

Bears



LA: photo (bear)



VA: policy memo MM-325 (bear)



CA: SW59 (bear)



NPS: RS-012 (bear)



VT: VW-050

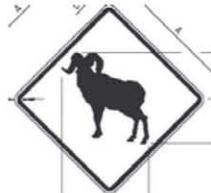
W11 - Advance Crossing Warnings (Cont'd.)

Non-Vehicular Crossings - Animals (cont'd)

Sheep



NV: NBS-1 (bighorn sheep)



AZ: W11-4a (bighorn sheep)



AZ: W11-4a (sheep)



NV: NSH-1 (sheep)



NY: spec auth 85-16 (sheep)

Bull, Steer, Bison



NV: NBL-1 (bull)



AZ: W11-4b (bull)



OR: OW11-6 (steer)



AK: W11-105 (bison)

Livestock, Open Range



CO: W11-52



MT: W11-4A, B



TX: W19-6



AK: W11-107



OR: OW11-8



BC, Canada: W-044



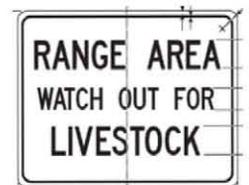
ID: W11-9



CO: W11-50



WY: photo



WA: I2-401



NM: W4-26



OR: OW11-7



CO: W11-53



ID: W11-901; NV: NOR-1



ND: photo

General & Misc.



AZ: W11-12



Ventura Co., CA: photo



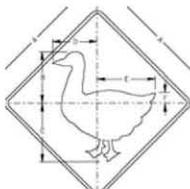
VT: VW-512



CO: W11-51



ID: W11-301



PA: W11-26 (duck)



CT: 41-4824



NV: NTO-1 (tortoise)



HI: photo (turtle)



AK: W11-108

W11 - Advance Crossing Warnings (cont'd)

Non-Vehicular Crossings - Peds, Bikes, Children

Deaf



ID: W11-18a



NY: W7-6



NC: policy D-2



Tucson AZ: SPW17-02



VA: policy memo TE-204



CT: 41-4607



PA: W11-22



MI: W15-10



VT: VW-279P



CA: SW38



PA: W11-22A



CT: 41-4601

"Deaf Person Area"
PA: W11-22



NH: W11B-3



VT: W11-2PD

Blind



NY: W7-7



Tucson AZ: SPW17-01



NC: policy B-10



CT: 46-4608



PA: W11-22



CT: 41-4609



ID: W11-18a

"Blind Person Area"
PA: W11-22



NH: W11B-1



VT: W11-2PB



NE: W40-63



PA: W11-25



CT: 41-4869

"Vision Impaired Child"
PA: W11-22A

Disabled



VT: W11-2PH



VT: VW-030P



NH: W11B-2



NC: policy A-18

"Mental Impaired Child"
PA: W11-22A

W11 - Advance Crossing Warnings (cont'd)

Nonvehicular Crossings - Peds, Bikes, Children (cont'd)

Children-General



MI: W11-12



VA: policy memo TE-280



PA: W15-2



Tapco: C1-2

"Children"
MA: W15-1b



NY: W7-4



Canada: WC-3 playground zone

Bikes on Road



NJ: W(NJ)22-1



NV: photo



PA: W15-3



MD: D11-1(1) (top: wht on blue, bot: blue on wht)



BC, Canada: W-130



MD: W11-1(1)



OH: W-178 (W11-H1a)



WA: W11-101 (plaque w W11-1)

"Bikes Next XX Miles"
VT: VW-224



MD: photo



GA: W560-2

"Bikes Sharing Bridge"
MA: W11-1c

Combined Peds/Bikes Warning



CO: W11-55



MD: W11-1(2)



OR: OBW8-22



WA: W11A-501



VT: VW-622A



WI: W11-22



MN: W11-X7

W11 - Advance Crossing Warnings (cont'd)

Nonvehicular Crossings - Peds, Bikes, Children (cont'd)

Pedestrians on Roadway



OH: W-179 (W11-H2a)



MI: W11-14



ID: W11-8



MO: W14-6

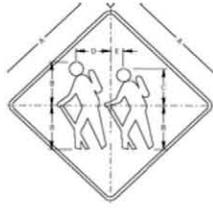


DE: Trf Calm Policy

Elderly, Hiker, Other



BC, Canada



PA: W11-2B (hikers xing)



CT: 41-4820



CT: 41-4823 (ski trail xing)



NY: photo



DC: photo

W12 - Low Clearance



AK: W12-2A



CA: photo



MD: W12-2(1)



OR: OW12-4

W12 - Arrows

Pass Both Sides



AZ: W12-1aAZ



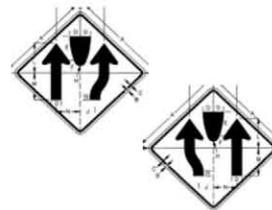
DC: W12-1a



WI: W20-57, 57P



CT: 80-9903, 9904



MD: W6-1(1) & (2)



MD: W6-1(3)



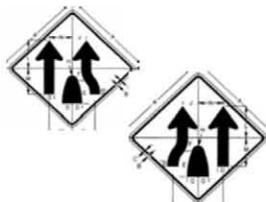
CT: 80-9905



NY: W3-4



Canada: WA-17



MD: W6-1(1) & (2)



NY: W9-5 (for ped refuges)



OH: W-84 (W11-H15)

Obstruction - Pass on One Side



CA: SW44 (for obstructions in lieu of obj. marker for special emphasis)

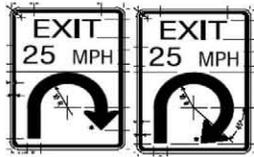


WI: W12-1

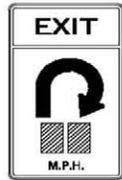
W13 - Advisory Speed



MD: W13-2(1)



MI: W14-2A,B



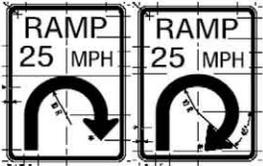
OK: W13-2A



NJ: W(NJ)7-8



CO: W13-50



MI: W14-3A,B



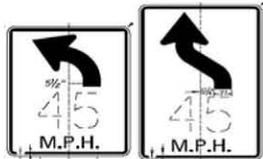
MD: W13-1(1)



OK: W13-3A



OH: W-99 (W13-H6R&L)



OR: OW1-8L&R, OW1-9L&R



NC: W13-4



OR: CW23-1 (orange)



MD: photo (diamonds attention panel)

W14 - Dead End, No Outlet, No Passing

End of Road



NC: W18-11



CA: W31A



(also "Highway Ends" X Mile)
MA: W20-3b, 3c



GA: photo



AK: W14-101, 100



MI: W14-2A



SC: W14-1a



TX: W14-1T



Canada: WA-8 (road end)



CA: W31

Not a Thru Street



Tucson AZ: SPW03-04



Sacramento, CA (photo)



PA: W14-2-1



Tapco: W14-1a

Other



AK: W14-102



AK: W14-105



NC: W14-3a



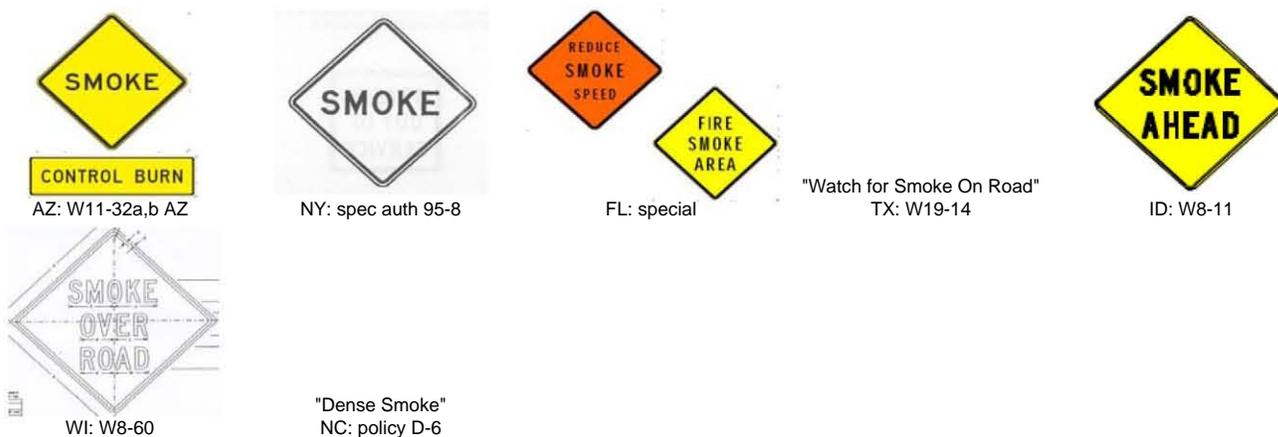
VT: VW-092

Atmospheric Conditions Affecting Visibility

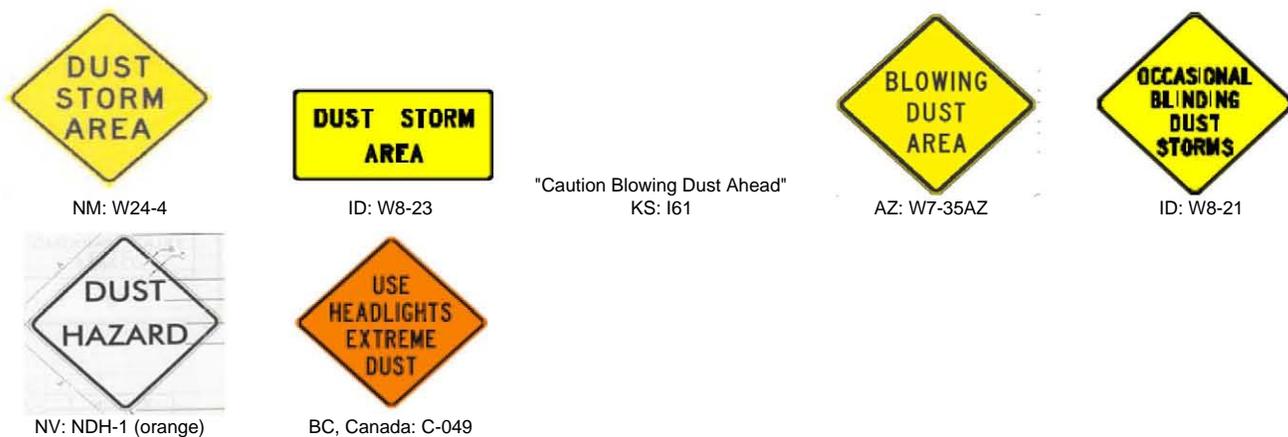
Fog



Smoke



Dust



Visibility - General, Other



W16, 17, 18, 25 - Misc. Warning (cont'd)

Wind Conditions



AK: W16-104



ID: W8-19B



VT: VW-036

"Caution Wind Currents"
KS: I68



AZ: W7-16



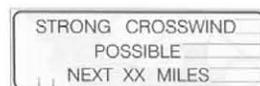
NE: W40-41A



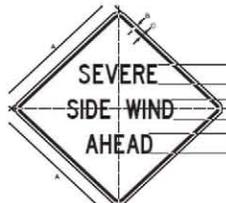
PA: W14-14



BC, Canada: W-122



NV: NCW-1



WA: W14-801



NM: W24-3



CA: SW17-1

Low Flying Aircraft



AK: W16-114



ID: W8-18a



WA: W14-701



VT: VW-008



CT: 41-4610



PA: W14-13



Canada (BC): W-114



NC: W14-13



NY: W7-8



NM: W24-22



MA: W11-15



WI: W11-57, 57a



WI: W11-58



AK: W16-106



CT: 41-4882



CT: 41-4611



AK: W16-108, 109



MN: X1-5 (blk on wht)

W16, 17, 18, 25 - Misc. Warning (cont'd)

Freeway or Expressway Ends - Advance Warning (Distance)



AK: W16-107



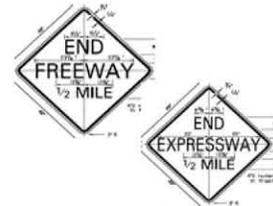
HI: CW16-1



CA: W69



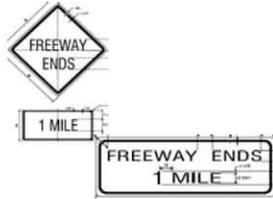
NC: W6-4



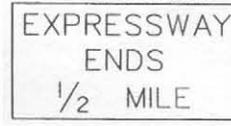
OR: OW6-4, 5



TX: W6-4



MI: W6-4 & W6-4A



CT: 41-5560



WI: W6-52



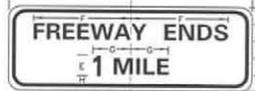
MN: E12-1



OH: W-55 (W9-H6, H7)



WA: W6-401



WV: W22-5



DE: photo



NJ: W(NJ)29-1

Freeway or Expressway Ends



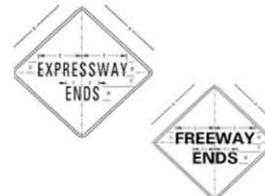
CA: SW36



NC: W6-5



HI: "End Frwy" (photo)



PA: W6-5, W6-7



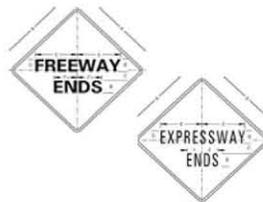
NV: NEF-1



WV: W22-6



HI: "Fwy Ends" (photo)



IL: W8-1103 & W8-1104



DE: photo



DE: photo



DE: photo



NE: W6-2D, E

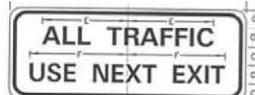
Other - Freeway End Related



NY: W9-21



AZ: W6-5a,b,c



WV: W22-4



WV: W22-7 R&L



VT: VC-008

W16, 17, 18, 25 - Misc. Warning (cont'd.)

Tunnel, Overpass, etc.



CO: W12-51



CA: SW37



WA: W14-501



OR: OW15-11



NM: W24-25



WV: W12-4



NC: W14-8



CT: 41-4675



CO: W12-50



NM: W24-21



MA: W12-6



NY: W7-9

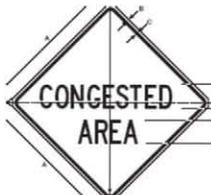


CO: W12-52

Congestion



NV: NCA-1



WA: W14-2202



CT: 41-4658



PA: W14-6



OR: OW15-6



WA: W14-2203



OK: const sign 9 (orange)



Europe: congestion symbol



Cent. Amer. MUTCD: P-7-9

Primitive or Minimum Maintenance Road, No Signs



NE: W40-96



NY: W4-16



MN: W21-X8



AK: W16-113



WA: I7-701



WA: I7-7



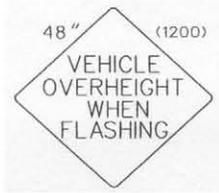
NM: W25-1

W16, 17, 18, 25 - Misc. Warning (cont'd)

Other Misc.



CT: 41-4767



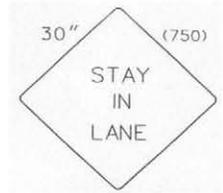
CT: 41-4768



NE: W40-54



FL: MOT-1-04 (orange)



CT: 41-1522



USFS: FW11-9a



OK: photo



NY: spec auth 85-5



WI: W8-68



PA: W14-22



NE: W3-7



MO: W15-3



NV: NDH-1, 2



USFS: FW3-2a

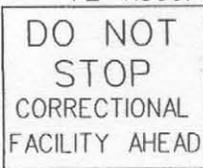


VT: VW-560



WA: W14-1601

"Danger Dam Ahead"
VT: VW-375



CT: 41-4666



CT: 41-4649



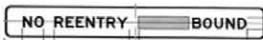
PA: W14-16



WI: W54-62, 63



VT: VW-602



OH: W13-H7, H8 (yellow)



USFS: FW4-2a, 2b



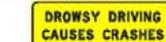
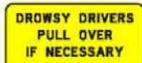
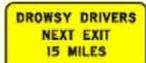
ID: W9-3a



PA: W14-11 (used w convex mirror)



Orlando, FL: photo (for peds)



UT: special



MA: photo



FL: Special w/ evacs



OH: N-78 (W3-H12) (yellow)



OH: N-85 (W3-H13) (yellow)

W20 to 24 - Misc. Work Zone Warning

Accident, Congestion, Delays Ahead



W8-42
NY: W8-42



AZ: W3-31AZ



WI: W8-67



MN: W14-X4



PA: W25-1 (Accident or Emergency)



Canada (BC): C-058



ID: W21-11



OR: OW15-10 (orange)



MD: W20-3(1)



ME (Tpke): CS-3 (orange)



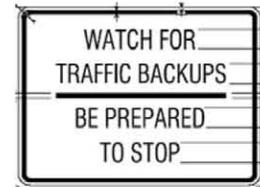
ME (Tpke): CS-3 (orange)



VT: VW-069



MI: W20-15A (orange)



MI: W20-15B (orange)



ME (Tpke)



ME (Tpke)



PA: W20-15 (orange)



NV: NDP-1, 2



VT: VC-806 (orange)



NM: W23-1



AZ: W23-1AZ



MN: W23-1

Unmarked Pavement, Temporary Markings



MD: W95-3



VA: VW-17



IA: G20-3



PA: W21-16

"No Center Line", "No Lane Line", "No Edge Line"
OH: W*-H12, 13, 14 (orange)



BC, Canada: C-055



NE: W25-6



MD: G95-20



MD: W95-10

W20-24 - Misc. Workzone Warning (Cont'd)

Lane Shifts



MD: W20-5(6)



WV: W20-11

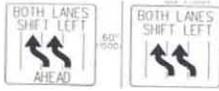


ME (Tpke): CS-5



PA: W5-5 (ahead or dist.)(orange)

"Lanes Shift"
MA: W1-4d



CT: 80-9433, 9434

Bridge Out



NE: W40-11



AZ: W20-31AZ (orange or yel)



NM: W24-27



Tapco: W42-1



NE: W40-11

Crossover



NE: W40-80



PA: G20-15 (orange)



CT: 80-9827



CT: 80-9437

Signal Work



MD: W21-7(3)



MN: W20-X10

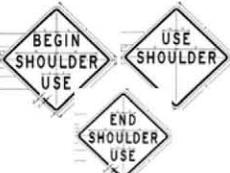


OR: CW21-11 (orange)



VT (orange)

Shoulder Use



MD: W95-6, 7, 8

"Shoulder Lane Ahead",
"Begin Shoulder Lane",
"End Shoulder Lane"
TX: CW23-1, 2, 3



WV: W20-13

Guardrail Damaged or Removed



PA: W21-9A



NE: W40-125

"Guard Rail Damage Ahead"
TX: CW21-17

"Bridge Rail Damage Ahead"
TX: CW21-18

W20-24 - Misc. Work Zone Warning (Cont'd.)

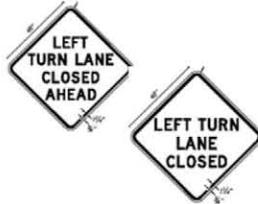
Something Closed Ahead



MD: W21-5(1)



Tapco: W42-5



OR: CW23-12, 13 (orange)



OR: CW23-6 (orange)

Other Work Zone & Temporary Conditions Warnings



PA: W21-5-1



PA: W21-5-2



WA: W21-1601



OK: CW21-9, 21-10 (orange)



NE: W41-5



OR: CW8-8



NE: W40-56B



CA: SC5

"Event Congestion Ahead"
MN: W14-X11



FL: MOT-9-04 (orange)



MT: W26-1



FL: MOT-10-04 (orange)



WA: G28-101



AZ: W21-8

"Watch for Slowing Vehicles"
OH: OW-161 (W3-H8)
(orange)



MN: W20-X6



Canada: (survey crew symbol)



WV: W20-14



DC: special



CT: 80-4601



MI: W20-4B (orange)



MI: W20-4A (orange)



CA: SC9



NE: W3-5



VT: VC-839



PA: G20-16 (orange)

S - School Warning Signs

School Bus Stop



NE: S3-1A



WV: S3-1



Canada: WC-9



BC, Can: SP-020



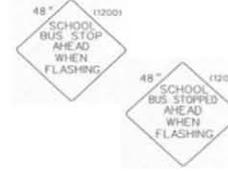
PA: S3 (for mult stops)



PA: S3-2



CT: 41-2160



CT: 41-2154, 2155



NE: S6-1A

School Bus Turn



OH: W-80



Canada (BC): SP-019

"School Bus Turn XX Ft. (or Ahead)"
MA: S3-4



NM: S3-4



TAPCO: S3-4



OR: OS3-2



WA: S3-201



PA: S3-1-1

School Bus Crossing



CT: 41-2162



NV: NSB-1



PA: S3-3



NM: S3-3



NE: S3-1B



NM: S3-2



VT: VW-407A



MA: S3-5



Ontario, Can.: Wc-10R

School Entrance and Misc.



FL: FTP-33-04



WI: W54-61



VT: VW-241 L&R



NJ: W(NJ)25-3



IN: S3-Y2



NE: S2-3

"School Zone Ahead" (plaque)
MA: S1-1p



NC: policy S-8



UT: SS1-1 plaque w S1-1



Tapco: S3-3

EXHIBIT C

OTHER SIGNS

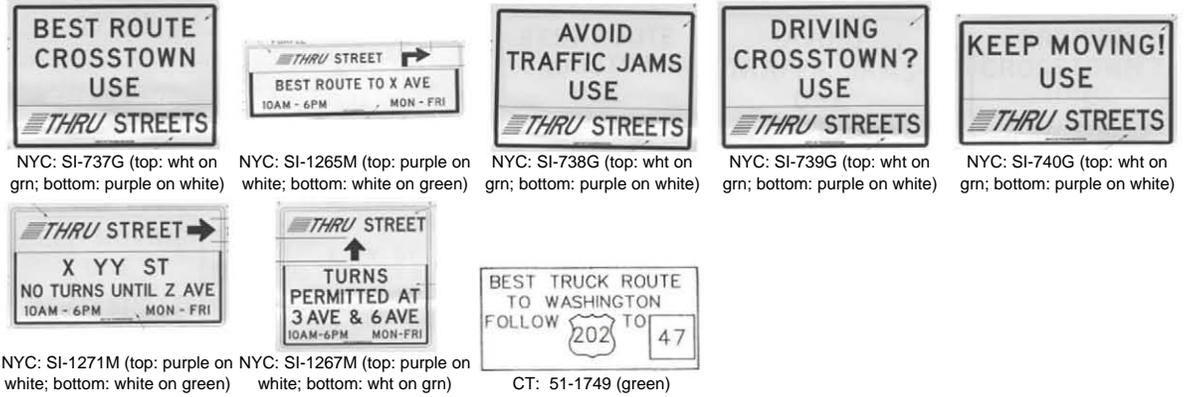
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D1, D2 - Destination & Distance (Conventional Road)

Conventional Road Approach to Freeway Interchange



Best Route to...



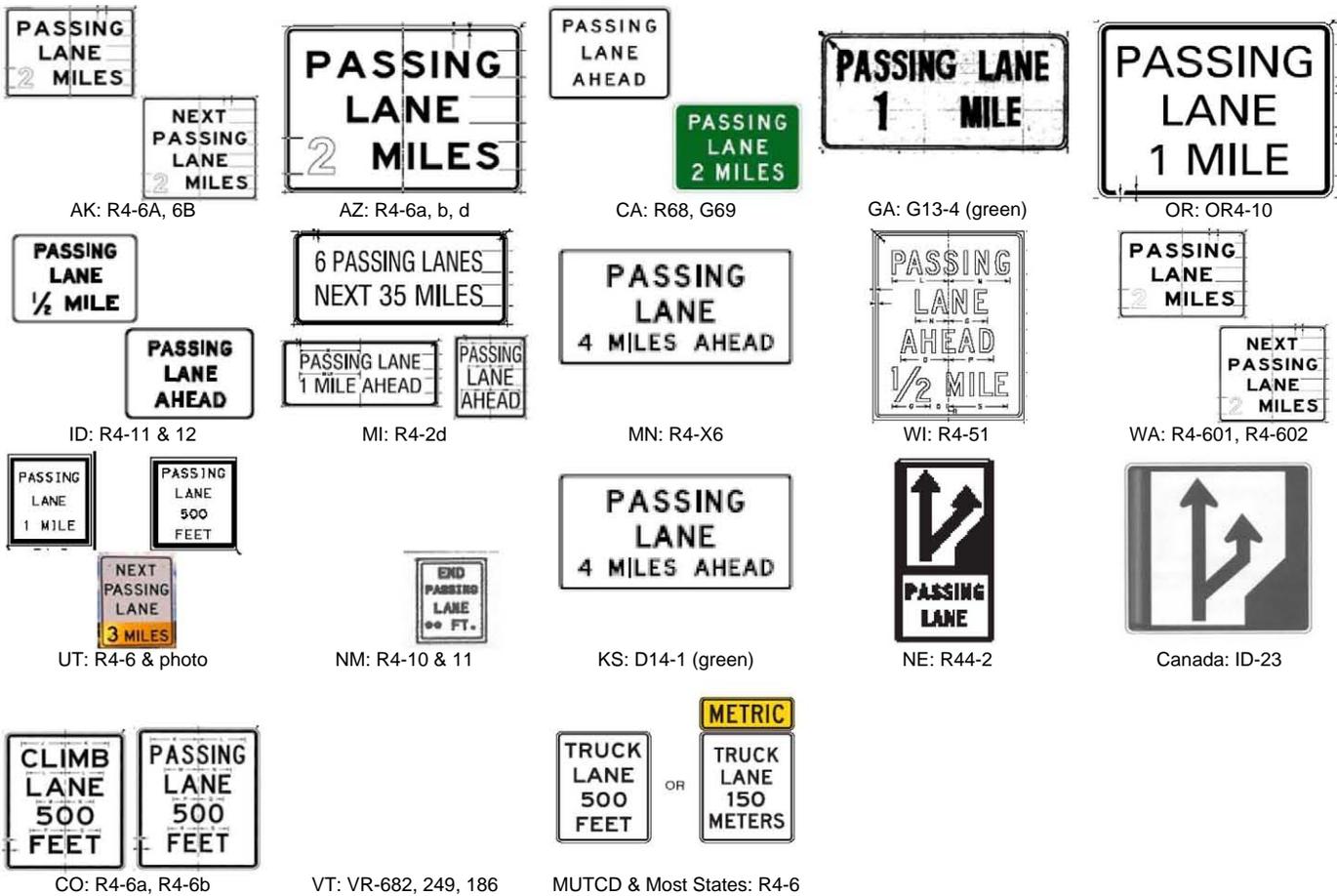
Jug Handle Guide Signs



Lane Use Combined with Guide



Passing, Climbing, Truck Lanes



Divided Road or Highway



Slow Vehicle Turnouts



Chain-Up and Brake Check Areas



D3 - Street Name Signs & Advance SNS



Lexington, KY: photo



Morris County, NJ: photo

D4 - Parking Area, Park & Ride Variations



CT: 51-6002 (green)



CT: 51-6043 (green)



DC: photo



DC: photo

D5 - Rest Area, Welcome Center, etc.



AK: D5-102, 104 (Conv. Rds.)



CA: G81-63



FL: policy

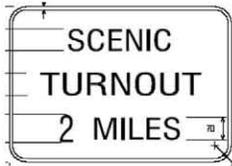


PA: D5-6-2 (wht on blue)

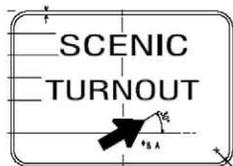


WI: E10-53 (white on blue)

D6 - Scenic Area



MI: D6-2 (wht on blue)



MI: D6-3 (wht on blue)



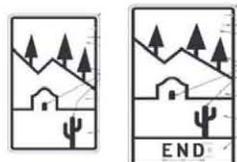
MT: D6-4



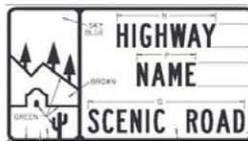
MT: D6-6



AK: I-170, 171 scenic rte mkr



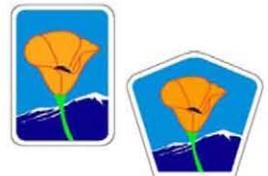
AZ: M1-11B, C (blue, brn, wht w/ green border)



AZ: M1-11A (blue, brn, wht w/ green border)



CA: G-30



CA: G30A, 30B



VT: VM-064 (used above rte mkr)



TN: TN-23 (used w/ rte mkr)



WI: MR1-99 (various colors)

D7 - National Park & Recreational/Cultural Area Guide Signs

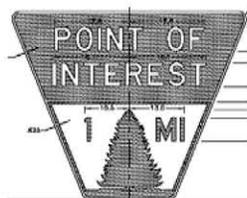
Point of Interest, Historic Point



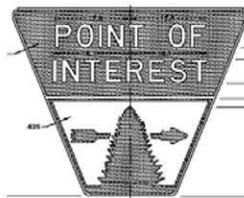
CA: G15



ID: D7-8



CO: D7-50 (brown)



CO: D7-50a (brown)



IN: D6-Y4



MT: D7-4

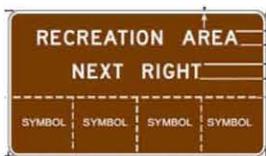


MT: D7-3

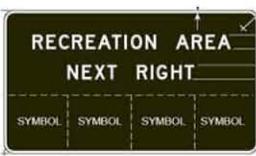


NV: NHV-1 to 3 (brown)

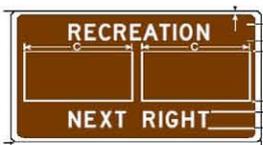
Recreation Area Services Guide Signs



AK: D7-100



WA: D7-7701 (brown)



AK: LG-C3

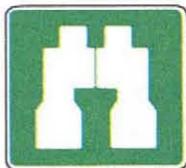
Wildlife Viewing Area



AK, AZ, CA (G200-81), FL, KY, NE, ND, SC, SD, TX, WA, WV, WY



TN: TN-42a (diff symbol)(brown)



NY: M8-22 (diff color)



ID, NC (RG-210), TX, WA



NV: NWV-1 to 4 (brown)



WI: M1-86 (brown)



WI: M1-87 (brown)

Other



CA: SG-28



NY: M8-27 (green)

D7 - National Park & Recreational/Cultural Area Guide Signs (Cont'd.)

Use of NPS Rec. & Cult. Symbols on Guide Signs



NY: M8-10, M8-9



NY: M8-14 (orchard)



NY: M8-15 (maple products factory)



NY: M8-16 (theater)



NY: M12-2 (scenic view)



NY: M8-19 (hiker-biker trail)



Tapco: I-4 (hiker-biker trail)



NY: M8-24 (lighthouse)



NY: M8-5 (college or univ.)



MT: D9-99 (museum)



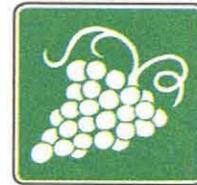
NY: M8-18 (post office)



MT: D20-1 (post ofc)



NC: photo



NY: M8-13 (winery)



CA: SG44-1



NY: M8-6 (ski area)



WI



Tapco: I-10 (winter activities)



NY: M8-20 (winter activities)

D8 - Weigh Station



AK: D8-102



AK: D8-103



AK: D8-104

D9 - General Services Signs

Tourist Activities



AK: LG-C2



AK: D9-20

Fuel Variations



CA: G66-11 (methanol fuel)



CA: G66-22B



MO: D9-7E (E-85 fuel)



NV: D9-7 MOD (blue)

Police



NY: M11-2



CA: G66-62



AK: D9-104 (State police)



CA: G66-57

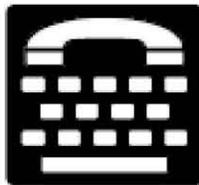
TDD (Phone Services for Deaf)



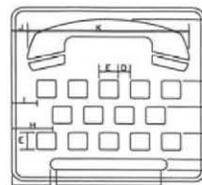
FL: FTP-23-04 (blue)



MD: D9-1c (Wht on blue)



MN: D9-1 (wht on blue)

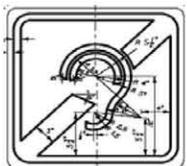


VA: memo TE-268 (blue)



ME (Tpke)

Other Motorist Services



FL: FTP-23-03 svcs for hearing impaired (wht/blue)



AK: D9-100



WA: D9-301 (blue)



AK: D9-230



MO: D9-2ST



CA: SG44-2



CA: G66-56 (STAA truck terminal)



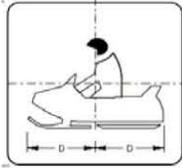
CA: G66-55 (STAA truck services)

D11, 12, 13 - Misc Information Signs

Variations of D11-1 for Other Types of Routes



NY: M7-1 (snowmobile rte)



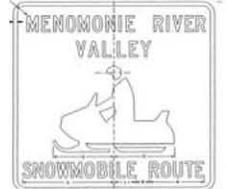
PA: I-12-1 (snowmobile rte mkr)



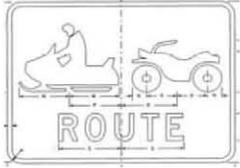
Tapco: D11-6



WI: D11-6 (green)



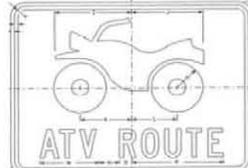
WI: D11-7 (green)



WI: D11-8 (green)



Tapco: W11-21



WI: D11-10 (green)



NY: M17-1 (ATV Rte)



PA: I-12-1-1 (ATV road rte mkr) (wht on green)



WI: D11-9 (green)



ID: D11-2

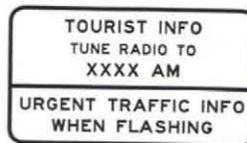
Radio Info -- D12-1 Sign Variations



CA: G81-65



VA: HAR-11 (blue)



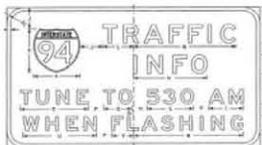
VA: HAR-8 (blue top, yel bot)



VA: HAR-1 (yellow)



VA: HAR-4 (blue top, yel bot)



WI: D12-5 (blue)

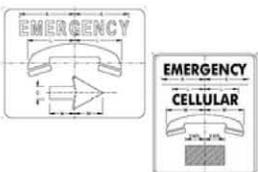


FL: suppl. to evac rte trailblazer



DC: photo

Emergency Call 911 -- D12-3 Variations



PA: D9-1-2, D12-15 (wht on blue)



AK: D9-1c



CT: 51-6711 (blue)



ME (Tpke)



WI: D12-4 (blue)



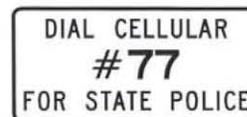
CA: G81-61



NJ: D(NJ)9-1 (blue)



VT: VD-492 (blue)



VA: memo TE-300 (blue)



SC: I11-1-60 (blue)

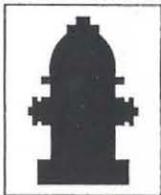
D11, 12, 13 - Misc Information Signs (Cont'd.)

Freeway Entrance D13-3 Variations



WA: E12-101 (green)

Fire Hydrant Markers



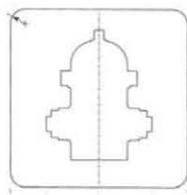
CT: 51-5943 (wht on brown)



MD: D95-19 (red on wht)



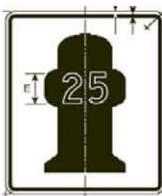
WI: D9-54 (white on green)



WI: D9-54A (white on green)



AK: M12-1



WA: I7-401 (red on white)



OR: OD450 (blue on white)



CA: S10

MO: white on blue fire hyd symbol



CA: S9

EM - Evacuation & Emergency



AK: EM-100



WA: I25-101



OR: OD463 (wht on blue)



AK: photo



WA: I25-102



OR: OD462 (wht on blue)



Unknown loc: photo



OR: OD465 (wht on blue)



OR: OD466 (wht on blue)



OR: OD464 (wht on blue)



FL: FTP-25-04 (hurricane evac rte)



SC: photo



NY: M16-1 (also "flood evac" & "nuclear evac")



WA: I25-201

E1 to E7 - Freeway/Expressway Guide Signs

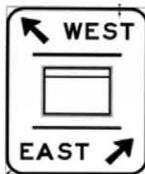
Exit Gore Sign Variations



MD: E5-1(3) exit gore (grn)



MD: E5-1(6) exit gore (grn)



MD: E5-1(9) ramp split gore (grn)

Diagrammatic for Route Information & Other Variations



VA: photo



NY: photo

Orange Guide Signs in Work Zone



RI: photo



NV: photo

Express Lanes/Local Lanes



NJ: photo



NJ: photo



MD: photo



IL: photo

E5, E11, E13 - Exit Only Panel Variations

Left Exit Panels on Guide Signs



TX: E11-2C



MO: E11-X1



MN: E11-X1



CA: W30C (left or right)



WV: E-11-1L, E11-1E (yellow)



NY



MD: photc

Variations of Exit Only Panels



PA: photo (This Lane)



CA: W61G



DE: photo



DE: photo

E13 - Advisory Speed on Exit Direction Signs



IA: photo



TN: photo



NY: photc



WV: photo

I - General Information Signs - Boundaries, Bus & Train Sta., Misc. Info.

Boundaries--Entering/Enter/Welcome to (City and County Lines)



WA: I2-301 (green)



AK: I-2E



MT: N6-1



MO: I6-3ST



OR: OD411A (wht on grn)



NJ: D(NJ)15-1 (green)



NJ: D(NJ)15-2 (green)



ID: I-4



AZ: I30-1



ME (Tpke) (green)



AL: I-20 (green)



MI: I2-2 (green)



VA: VG-21 (green)



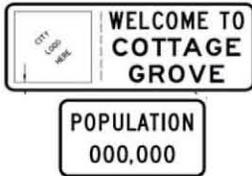
OH: N-2



IN: I-Y12



AK: I-101



OR: OD413 (wht on grn)



NC: I2-8

Boundaries--City and County Limits or Lines



VA: VG-23 (green)



AK: I-2A



AZ: I30-3



VA: VG-24 (green)



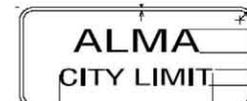
TN: TN-3



AL: I-15 (green)



NC: I2-5



MI: I2-3 (green)



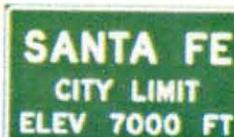
NM: I-2e



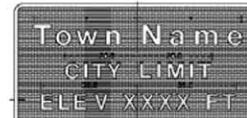
OH: N-1



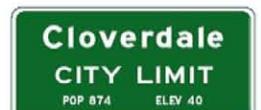
MO: I4-1, I4-3ST



NM: I-2d



CO: D50-3 (green)



CA: G9-5



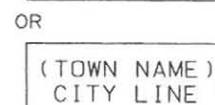
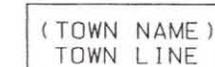
NM: I-2a



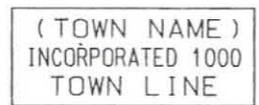
NV: NCH-1 (green)



CA: G10



OR: 51-2024 (green)



CT: 51-2020 (green)

I - General Information Signs - Boundaries, Bus & Train Sta., Misc. Info. (cont'd.)

Boundaries--City and County -- name only



AK: I-2B



MN: I2-3



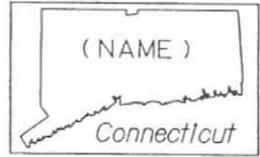
WI: I2-3 (green)



NE: N15-1



CA: G9-2



CT: 51-2040 (town name) (whit on green)



VT: VD-018 (green)



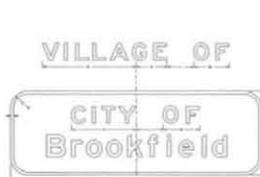
WV: I-26 (green)



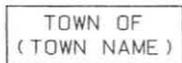
TN: TN-4



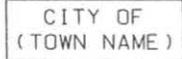
WI: I2-3 (unincorp) (green)



WI: I2-3a (green)



OR



CT: 51-2048 (green)

Mountains, Summits, Elevations



CA: G16



WA: I3-201 (green)



AK: I-3B



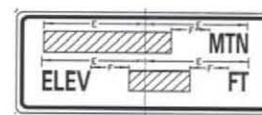
ID: I-23



VA: VG-28 (green)



PA: I13-3 (mtn name, elev, XXXX ft) (grn)



WV: I-30 (green)



ID: I-25



CA: G17



NV: NLV-1a & 1b (green)



AZ: I25

I - General Information Signs - Boundaries, Bus & Train Sta., Misc. Info. (cont'd.)

Odometer Check Signs



MN: X1-1 (blk on white)



MN: X1-2 (blk on wht)



MN: X1-3 (for odom chk) (blk on wht)



WA: I30-101 (white on black)



WA: I30-301A, 301 (wht on black)



WA: I30-401 (wht on black)



AK: I-140 (wht on black)



AK: I-141 (wht on black)



AK: I-143 for speedometer checks (wht on black)

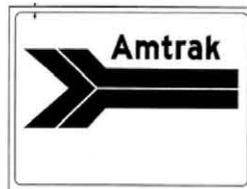
Transportation Terminal Signs



DE: photo (Amtrak)



DC: photo



MD: I95-15 (wht on blue)



FL: Amtrak (policy)



FL: Greyhound Bus Sta (policy)



AK: I-100 (ferry terminal)



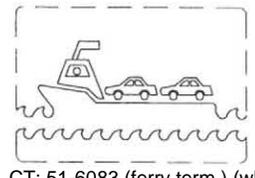
WA: I5-801 (ferry terminal)(green)



WA: I5-801A (ferry terminal) (green)



NY: M8-4 (ferry)



CT: 51-6083 (ferry term.) (wht on green)



Canada: car ferry symbol



FL: passenger (cruise) ship docks (policy)



MD: D99-1, I95-5 (blue on yel)

M1 to M7 - Route Markers & Auxiliaries, Detour Directional

M1 - Route Markers -- Indian Road, Frontage Road, Other



AZ: M1-10A (Indian rd rte mkr)
(wht on blk)



MT: M1-10 Indian Rd Rte
shield (wht on blk)



WI: photo (Indian Rte.)



SD, NM: BIA Indian Rte.



Pittsburgh, PA: photo



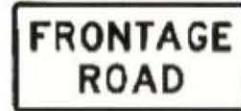
NM: M1-10



WI: M1-95 (black on wht)

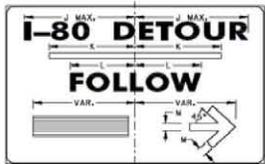


WI: M1-95a (also N, S, W)(blk
on wht)

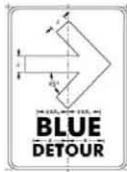


IN: M4-Y14 (blk on wht)

M4, M1 - Route Markers -- Detours



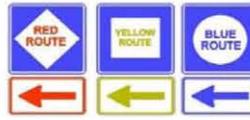
PA: D14-1 (various color
arrows)



PA: D15-1 (various color
arrows on wht bkgnd)



WI and IL: photo



MO: photo



IL: photo

M1 - Route Markers -- Bike Variations



CA: SG45



San Fran, CA: photo



PA: photo



VT: VD-503



MO: M1-14-24

M4 - Auxiliaries Above Route Markers -- Begins/Ends, Old/Formerly



MN: M2-X1



IN: M4-Y11A



DE: photo



NJ: M(NJ)4-10



VT: VM-401



HI: photo



RI: M4-6



MI: M6-8



MN: M4-X1



VA: VG-5



CT: 51-6618



KY: photo

M1 to M7 - Route Markers & Auxiliaries (Cont'd.)

M4 - Auxiliaries Above Route Markers -- Other



VA: VG-6



WV: M4-12



DE: photo



NJ: photo



FL: photo



WV: M4-4C



VT: VM-078



GA: photo

M6 - Auxiliaries Below Route Markers -- Lane Direction



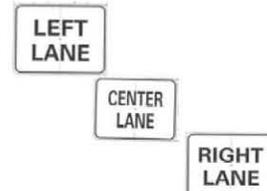
NC: M4-16L, R (used w/ rte mkr)



AR: photo



NY: M13-61, 62, 63



WV: M5-3L, C, R



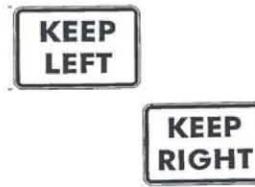
CT: 51-664C, L, or R



NJ: M(NJ)8-2L & R

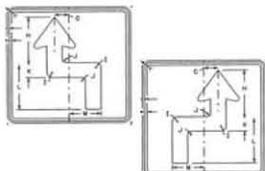


VT: VD-513

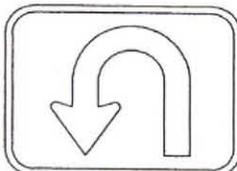


NJ: M(NJ)8-1L & R

M6 - Auxiliaries Below Route Markers -- Arrow Variants



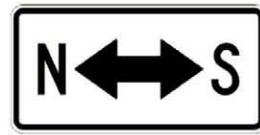
WI: M5-51L & R (blk on wht or wht on blue)



CT: 51-2652 (wht on grn)



CA: photo



TN: TN-39 (urban limited space)



OH: M50