



CDOT GUIDELINES ON
VARIABLE MESSAGE SIGNS (VMS)

Colorado Department of Transportation

VMS Committee

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OVERVIEW

The purpose of these guidelines is to ensure that Variable Message Sign (VMS) messages are used to inform and direct motorists of variable situations in a consistent and orderly manner. The messages are for the purpose of traffic control, management and timely traveler information.

INTRODUCTION

Variable Message Signs (VMS), also known as Dynamic Message Signs (DMS), Variable Message Boards (VMB), or Changeable Message Signs (CMS), are a valuable and effective traffic control tool available for construction, incident management, traveler information and maintenance activities today. In addition, they can be effective for large special events that significantly affect traffic flow. Care must be taken, however, that the VMS not be used for advertising. Used effectively, the VMS will provide changing – but specific information to the driver. For example:

A roadway problem	LEFT LANE CLOSED
The approximate location	1 MILE
The instruction to the motorist	MERGE RIGHT

There are several possible roadway elements that a VMS can be utilized to notify the traveling public about. These include:

- Construction
- Incident Management
- Traveler Information
- Maintenance Activities

As with other traffic control devices, **credibility of the message is critical**. Without credibility, even the best message will go unheeded. Care must be taken not to display a message that motorists will disregard or will discover to be incorrect. Signs are the primary channels of communication to the motorist.

PRINCIPLES

This guideline sets forth the basic principles governing the use of VMS messages. As stated in the MUTCD, Section 1A.02, to be effective, the VMS message should meet the following requirements:

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

Each VMS message shall be displayed for a specific purpose such as those provided in this guideline. VMS messages requested for roadway conditions or restrictions should be removed immediately when those conditions cease to exist or the restrictions are withdrawn. Identical conditions should always be given the same VMS message irrespective of where the conditions occur.

WHEN TO USE A VMS

As stated in “CDOT VMS Usage Policy”, it is CDOT policy that the Colorado Traffic Management Center (CTMC) shall have the authority to place messages on a VMS that the CTMC can control, statewide, when the message content is requested from a verifiable and credible source (e.g., CDOT, Colorado State Patrol). The CTMC will be responsible for removal of said message when applicable. The individual CDOT Regions, however, will have override authority for the VMS boards in their Region. Messages dealing with traveler safety and road conditions shall take precedence over informational messages.

As stated in the MUTCD, Section 2E.21: “Changeable message signs shall display pertinent traffic operational and guidance information only, not advertising.”

With these facts in mind, the following are examples of when to use a VMS.

Incidents

1.) Accidents

An incident with a minimum of blockage and with short time duration is not appropriate for a VMS warning. The situation will probably be cleared before the message is placed on the VMS.

Incidents that block lanes for substantial periods of time are ideal for getting information to the traveling public. Messages near the incident can inform motorists of the problem and move cars into open lanes. Signs farther away from the incident can suggest alternate routes.

2.) Traffic Diversion

Traffic is commonly diverted, such as when a road or pass is closed due to weather.

3.) Incident Management Plan (IMP)

Use VMS signs per the traffic management strategies outlined in the IMP. Regional, corridor-wide as well as project-wide incident management plans have been developed to facilitate response to incidents and help mitigate traffic congestion. As directed by the Incident Commander, implementation of various levels of traffic management plans for incident management (i.e. use of pre-identified traffic detour routes) incorporate strategic use of VMS signs.

4.) Notice of Roadwork

This warns motorists of upcoming construction activities that will impact traffic flow. This may include lane closures, lane shifts, two-way traffic, shoulder work, and construction traffic entering the highway, detours, etc. This will supplement normal roadwork signing as required by the MUTCD.

5.) Regulatory

VMS are currently allowed by law to be used for regulatory purposes in two situations: during the use of High Occupancy Vehicle (HOV) lanes, and to inform drivers the chain law is in effect. VMS can be used to supplement regulatory signs.

6.) Adverse Weather and Roadway Conditions

Messages will be used to display adverse weather or roadway conditions downstream that may impact the drivers' visibility or safety. These conditions may include snow, icy roadways, fog, dust storms, falling rocks, mudslides, high winds, etc.

7.) Operation With Lane Control Signals

Typically used in the tunnels, these signs have a red 'X' in the closed lane and a green arrow in the open lane.

Traveler Information

1.) Display of Future Roadwork

Motorists will be warned of road construction activities in the near future (within a week) that will adversely affect traffic. These messages will give the regular traveler a chance to change routes or travel times.

2.) Display Information for Other States

Adjacent states may have incidents that force the closure of a major highway. Messages on the same corridor or connecting corridor can inform interstate travelers of the incident.

3.) Test Messages

During initial VMS burn-in or during maintenance, test messages are a necessary function. These messages are for limited duration.

4.) Future Technology

There is experimentation using ITS traffic monitoring devices to determine travel times to destinations. Once this technology is tested for reliability, travel times could be posted on the VMS on high-congested corridors.

5.) Special Events that Affect Traffic Flow

These messages display information about future events that affect traffic flow and safety. The Region Traffic Engineer will approve the use of the signs. In urban areas these messages shall be used only on high-speed facilities, unless otherwise approved by the Region Traffic Engineer. There may be times where static signs would be a more appropriate use. The messages should be displayed within a week of the event.

Public Service Announcements

In general, public service announcements (PSA) may be displayed on a limited and short-term basis. The VMS should be used sparingly for the PSA so that the primary purpose and long-term effectiveness of these signs will not be degraded. The PSA shall not be displayed in urban areas during the peak travel periods. Special event signing, notification of future roadway construction, and displaying messages for other states are all forms of public service announcements and have been adequately addressed in previous sections. However, there are additional categories of PSA messages appropriate for VMS use, as described below. Most PSA messages will fall into one of these categories, though there may be others such as non-typical truck load restrictions, homeland security information pertinent to travel, natural disaster notification, and evacuation route information that would be appropriate as a PSA. Under no circumstances shall the VMS be used for advertising of any kind. The PSA shall not be displayed prior to the approval of the Region's Traffic Engineer, except as described below.

1.) Amber Alert

CDOT in partnership with the Colorado Bureau of Investigation established an Amber Alert Policy in the event of child abduction. VMS procedure is detailed in that policy. These messages do not require the specific approval of the Region Traffic Engineer, but will be placed on VMS by the CTMC in accordance with the prescribed policy procedure.

2.) Fire Danger

Due to the nature of travel across Colorado, messages such as controlled burn, forest fire and fire ban information are considered appropriate messages. The U.S. Forest Service will notify the CTMC in the event of a high or extreme fire danger. Those messages will be placed on the VMS near the state border and on the highway corridor leading into the mountains.

3.) Driver Safety Campaigns

Messages related to driver safety campaigns will be allowed if other media is used, such as radio, TV, newspapers, billboards, etc. This is necessary since the message could be confusing to drivers if they have not been exposed to the information. In this case the VMS should be used randomly, and sparingly. The total duration of display in these cases should not exceed two hours per day on any one message board. The display times will be staggered, so the message will not appear at the same time each day, and care must be taken so the staggered times do not fall consecutively.

Blank Signs

A VMS will be in a blank mode during the peak and off-peak periods when traffic, roadway, environmental, or pavement conditions, or public service announcements do not warrant the display of a message, or messages.

MESSAGE CONTENT

Variable Message Signs do provide a versatile means of communication. The message, however, must be concise and clear for the drivers to interpret at high speeds while they can have any number of distractions. This section will illustrate how to write and display the message to give brief, clear and accurate information to the motorists.

Timing

The reading time is the time it actually takes a driver to read a sign message. The exposure time is the length of time a driver is within the legible distance of the message. So the exposure time must always be equal to or greater than the reading time. Depending upon the speed of the drivers, the message length must be adjusted to insure the reading time can fit into the exposure time.

The Traffic Control Devices Handbook by the Institute of Transportation Engineers states the MUTCD requires minimum legibility of portable variable message signs at 650 feet and 1,000 feet for higher speed facilities. The following shows how many seconds it takes to travel 1,000 feet at various speeds.

Speed	Time to Travel 1,000 feet (seconds)
45	15.2
55	12.3
65	10.5
75	9.1

When the VMS displays a series of message panels, 2-4 seconds per message panel is recommended. The blinking feature may be used on one or more of the panels. It should however not be used for more than one line of each panel.

The following table shows the maximum number of message panels that can be displayed for each speed limit, and provided there is at least 1,000 feet of site distance.

Speed Limit (MPH)	Number of Message Panels
45	3 (see "Limit Panels" section)
55	3 (see "Limit Panels" section)
65	2 (see "Limit Panels" section)
75	2 (see "Limit Panels" section)

If only one message panel is used, the sign may be at steady burn and the blinking feature may also be used for a single message (one message panel). For example, the single message panel may also be on for 2 seconds and off for 1 second.

Limit Panels

The limitations to the number of message panels to use is twofold:

1. Motorists should be able to read the message twice while traveling at the posted speed.
2. When more than two screens (panels) are used, the message and its order become confusing to the motorist. The message shall be kept to two panels, except as described below:
 - a. The chain law, as three panels must be used to get all the pertinent information to the drivers.
 - b. As approved by the Region Traffic Engineer for safety or emergency reasons.

Again, the average motorist at a high rate of speed can comprehend two message panels. If three panels are necessary, keep the confusion minimized. Each panel should be a complete phrase and each phrase should be independent of the other. If the motorist begins reading the message at the 2nd or 3rd panel, the total message should make sense.

Message Unit

In each message there are units of information. A unit is one separate piece of data that the driver can recall and use to make a decision. A unit normally is one or two words but can be up to four words long. For example, the following message has four units of information:

What happened?	I-25 CLOSED
Where?	AT EXIT 287 WELLINGTON
Who is affected?	ALL TRAFFIC
What must they do?	MUST EXIT

Message Length

The message-load for the above is 4 units. That is reaching the limit for an average person to understand while traveling at a high speed. The message length is the number of words or characters in the message. The average motorist traveling at a high rate of speed can handle 8 word messages of 4 to 8 characters per word, (excluding prepositions). The number of panels or frames is another important variable in the construction of a clear message.

Message Familiarity

Message familiarity is another aide for motorist ability to understand a message. When information displayed to motorists is unusual, longer comprehension time is required. Common language is necessary. Appendix A contains a list of typical messages in many of the VMS

memories. Appendix B contains a list of common abbreviations. Both attachments are valuable resources because this will help standardize messages and help motorists comprehend quickly.

To further message comprehension, the following are suggestions taken from research conducted by the Texas Transportation Institute concerning messages drivers can comprehend the quickest:

- Drivers have difficulty corresponding calendar days to days of the week. For example, “TUES – FRI” is preferred over “OCT 1 - OCT 4”.
- Drivers find the phrase “FOR 1 WEEK” ambiguous. It is preferable to use “WED–TUES”.
- Most drivers felt the term “WEEKEND” meant the work would begin Saturday morning and be complete by Sunday evening. It is recommended times and days be used if the work begins on Friday and extends to Monday.
- The highway or route numbers should be displayed with the route or interstate designation. The number alone can be confusing to both local and drivers from other areas.
- A unit of information may be displayed on more than one line on the VMS. A sign line should not contain more than two units of information.

Message Sets

Experience has shown there are three types of elements to use when messages fall under the categories of Incidents and Traveler Information, as follows:

Advisory Signs

The advisory signs display real-time information about freeway status and advisories concerning the best course of action. These will mostly be used for incidents. The advisory sign message should consist of the following:

- A problem statement (accident, road closure, construction, adverse weather, etc.)
- An effect statement (delay, congestion, etc.)
- An attention statement (addressing a certain group or audience)
- An action statement (what to do)

The minimum information is the problem and action statements. The location of the problem is also sometimes useful in a diversion decision.

HIGH WIND	< Problem Statement
RESTRICTION	< Effect Statement
HIGH PROFILE VEHICLES	< Attention Statement
MAY BE STOPPED	< Action Statement

Guide Signs

Guide signs are necessary if the traffic must be diverted due to an incident or construction. The guide signs must provide destination information and route affirmation and direction.

Advance Signs

There are times to inform drivers of incidents that are farther ahead of the current location. This up-to-date information has the following basic elements that can be communicated:

- Information alert
- Nature of information (best route, traffic conditions, etc.)
- Destination for which information applies
- Location of the information (AHEAD or specific distance)

If there is a diversion situation with known alternative routes available:

- Route markers of the major alternative routes.

THE PORTABLE VMS

The above guidelines apply to all types of VMS, but because of its nature, the following additional guidelines are applicable to the portable VMS.

The proper placement of a portable VMS is critical to its effectiveness. The placement requirement must give the motorist adequate time to react to the message. The VMS must be located prior to major decision points, such as intersections or interchanges, where the driver may change their travel plans. (On the Interstate, or other access-controlled freeways, placement 1 mile prior to the interchange is recommended.) Also, it must be placed prior to the present and expected traffic backups.

Placement requirements include:

- To provide 800 feet of sight distance.
- Where signs, poles, or other objects will not obstruct the VMS.
- On a level surface.
- Not within an intersection or interchange.
- Should not interfere with other traffic control devices.

If more than 2 VMS are to be used in sequence, they should be separated by at least 1,000 feet.

The sign should be placed off of the shoulder of the roadway, behind the guardrail, if possible, and where it will be accessible to maintenance vehicles even if the traffic queue develops or grows. To be comfortable to read, the VMS panel should be turned slightly towards the driver's view, at approximately 5 to 10 degrees from perpendicular of the road's centerline. Reading the VMS becomes more difficult as the angle is increased from the normal field of vision. It is recommended to drive by the VMS after installation to be sure the sign is readable from the road.

If the portable VMS is set up along the roadway and a message will not yet be needed for a period of 4 hours or more, the sign panel should be turned away from traffic, parallel to the road's centerline. No blank signs should be facing the drivers for extended periods.

References:

-Manual on Uniform Traffic Control Devices (MUTCD), Millennium Edition, Revision 1, 12/28/01

-Traffic Control Devices Handbook, 2001, Institute of Transportation Engineers

-Dudek, C.L., N. Trout, S. Booth, and G. Ullman, *Improved Dynamic Message Sign Messages and Operations*, FHWA/TX-01/1882-2, Texas Transportation Institute, The Texas A&M University System, College Station, Texas, 77843-3135, October 2000.

Appendix A

Typical CDOT VMS Messages

CHAINS
1-DRIVE AXLE COMBO COM VEHICLES ONLY CHAINS REQUIRED

CHAINS
ALL VEHICLES CHAINS REQUIRED

CHAINS
ALL VEHICLES MUST USE CHAINS OR SNOWTIRES

CHAINS
CHAIN UP STATION MM ____

CHAINS
COM VEHICLES ONLY CHAINS REQUIRED

CLOSURE
ACCIDENT AHEAD ROAD CLOSED

CLOSURE
CENTER LANE CLOSED AHEAD

CLOSURE
EXIT CLOSED AHEAD

CLOSURE
FRONTAGE ROAD CLOSED

CLOSURE
I-25 AND US 287 CLOSED TO WYOMING

CLOSURE
I-25 CLOSED AT EXIT 287 WELLINGTON ALL TRAFFIC MUST EXIT

CLOSURE
I-25 OVERNIGHT CLOSURE: ____ TO ____ 11PM-5:30AM

CLOSURE
I-80 CLOSED AT OGALLALA, NE

CLOSURE
I-80 CLOSED CHEYENNE TO LARAMIE

CLOSURE
LEFT LANE CLOSED

CLOSURE
LEFT LANE CLOSED AHEAD

CLOSURE
LEFT SHOULDER CLOSED AHEAD

CLOSURE
RAMP CLOSED

CLOSURE
RAMP CLOSED AHEAD

CLOSURE
REST AREA CLOSED

CLOSURE
RIGHT LANE CLOSED

CLOSURE
RIGHT LANE CLOSED AHEAD

CLOSURE
RIGHT SHOULDER CLOSED AHEAD

CLOSURE
ROAD CLOSED

CLOSURE
ROAD CLOSED ____ MILES AHEAD

CLOSURE
ROAD CLOSED AHEAD

CLOSURE
ROAD TEMPORARILY CLOSED

CLOSURE
TUNNEL CLOSED AHEAD

CLOSURE
US 287 CLOSED MM 355 INTO WYOMING

CONSTRUCTION
BRIDGE WORK AHEAD

CONSTRUCTION
CONSTRUCTION AHEAD EXPECT DELAYS

CONSTRUCTION
CONSTRUCTION NEXT ____ MILES

CONSTRUCTION
CRACK FILLING AHEAD

CONSTRUCTION
FLAGGER AHEAD

CONSTRUCTION
FRESH TAR ON ROAD

CONSTRUCTION
MEDIAN WORK AHEAD

CONSTRUCTION
METAL PLATES AHEAD

CONSTRUCTION
MOBILE PATCHING AHEAD

CONSTRUCTION
MOWERS AHEAD

CONSTRUCTION
MOWERS NEXT ____ MILES

CONSTRUCTION
NIGHT WORK AHEAD

CONSTRUCTION
PAINT CREW AHEAD

CONSTRUCTION
PAVING OPERATIONS AHEAD

CONSTRUCTION
ROAD PAVING AHEAD

CONSTRUCTION
ROAD WORK AHEAD EXPECT DELAYS

CONSTRUCTION
ROAD WORK NEXT ____ MILES

CONSTRUCTION
ROAD WORKERS AHEAD

CONSTRUCTION
SHOULDER WORK AHEAD

CONSTRUCTION
SLOW MOVING VEHICLE

CONSTRUCTION
SNOW BLOWERS AHEAD

CONSTRUCTION
SNOW REMOVAL AHEAD

CONSTRUCTION
SURVEY CREW AHEAD

CONSTRUCTION
SWEEPER AHEAD

CONSTRUCTION
TRUCKS CROSSING

CONSTRUCTION
WATCH FOR TRUCKS

CONSTRUCTION
WET PAINT

CONSTRUCTION
WORKERS IN TUNNEL

DIRECTIONAL
ACCIDENT AHEAD ALL TRAFFIC MUST EXIT

DIRECTIONAL
ACCIDENT AHEAD BE PREPARED TO STOP

DIRECTIONAL
ACCIDENT AHEAD EXPECT DELAYS

DIRECTIONAL
ACCIDENT AHEAD MERGE LEFT

DIRECTIONAL
ACCIDENT AHEAD MERGE RIGHT

DIRECTIONAL
ALL RAMPS OPEN

DIRECTIONAL
ALL TRAFFIC EXIT

DIRECTIONAL
ALL TRAFFIC EXIT LEFT

DIRECTIONAL
ALL TRAFFIC EXIT RIGHT

DIRECTIONAL
ALL TRAFFIC MUST STOP

DIRECTIONAL
BUMP AHEAD

DIRECTIONAL
CHECK FUEL BEFORE ENTERING

DIRECTIONAL
CONGESTED AREA AHEAD

DIRECTIONAL
CURVE AHEAD

DIRECTIONAL
DETOUR

DIRECTIONAL
DIP AHEAD

DIRECTIONAL
DO NOT PASS

DIRECTIONAL
EXIT HERE

DIRECTIONAL
EXPECT DELAY

DIRECTIONAL
FORM ONE LINE LEFT

DIRECTIONAL
FORM ONE LINE RIGHT

DIRECTIONAL
FORM TWO LANES LEFT

DIRECTIONAL
FORM TWO LANES RIGHT

DIRECTIONAL
HEAVY TRAFFIC AHEAD

DIRECTIONAL
HEAVY TRAFFIC TO DENVER

DIRECTIONAL
HEAVY TRAFFIC TO MOUNTAINS

DIRECTIONAL
KEEP LEFT

DIRECTIONAL
KEEP RIGHT

DIRECTIONAL
LANE CLOSURES AHEAD EXPECT DELAYS

DIRECTIONAL
LANE CONTROL AHEAD

DIRECTIONAL
LANE ENDS

DIRECTIONAL
LANE NARROWS AHEAD

DIRECTIONAL
LANES MERGE AHEAD

DIRECTIONAL
LEFT 2 LANES CLOSED

DIRECTIONAL
LIMITED SIGHT DISTANCE

DIRECTIONAL
LOOSE GRAVEL AHEAD

DIRECTIONAL
LOOSE GRAVEL ON ROAD

DIRECTIONAL
MAX SPEED ____ MPH

DIRECTIONAL
MERGE AHEAD

DIRECTIONAL
MERGE LEFT

DIRECTIONAL
MERGE RIGHT

DIRECTIONAL
MERGE RIGHT

DIRECTIONAL
MERGE RIGHT

DIRECTIONAL
MERGING TRAFFIC AHEAD

DIRECTIONAL
MINIMUM SPEED ____ MPH

DIRECTIONAL
NO PASSING

DIRECTIONAL
NO PASSING

DIRECTIONAL
NO SHOULDER

DIRECTIONAL
NO WIDE LOADS

DIRECTIONAL
ONE LANE BRIDGE AHEAD

DIRECTIONAL
ONE LANE TRAFFIC

DIRECTIONAL
PASS LEFT

DIRECTIONAL
PASS RIGHT

DIRECTIONAL
PAVEMENT ENDS

DIRECTIONAL
PEDESTRIAN CROSSING

DIRECTIONAL
PILOT CAR AHEAD

DIRECTIONAL
PREPARE TO MERGE

DIRECTIONAL
RIGHT LEFT 2 LANES CLOSED

DIRECTIONAL
ROAD NARROWS AHEAD

DIRECTIONAL
ROCKS ON ROAD

DIRECTIONAL
ROUGH ROAD AHEAD

DIRECTIONAL
ROUGH ROAD AHEAD

DIRECTIONAL
ROUGH ROAD AHEAD

DIRECTIONAL
SHARP CURVE AHEAD

DIRECTIONAL
SHOULDER DROP OFF

DIRECTIONAL
SHOULDER DROP OFF AHEAD

DIRECTIONAL
SIGNAL AHEAD

DIRECTIONAL
SIGNAL NOT WORKING

DIRECTIONAL
SINGLE LANE AHEAD

DIRECTIONAL
SLOW TRAFFIC

DIRECTIONAL
SOFT SHOULDER AHEAD

DIRECTIONAL
SPEED LIMIT STRICTLY ENFORCED

DIRECTIONAL
STAY IN LANE

DIRECTIONAL
STAY IN LANE

DIRECTIONAL
STAY IN LANE

DIRECTIONAL
STEEP GRADE

DIRECTIONAL
STOP AHEAD

DIRECTIONAL
TWO LANE TRAFFIC AHEAD

DIRECTIONAL
TWO-WAY TRAFFIC

DIRECTIONAL
TWO-WAY TRAFFIC AHEAD

DIRECTIONAL
TWO-WAY TRAFFIC AHEAD

DIRECTIONAL
UNEVEN PAVEMENT AHEAD

DIRECTIONAL
UNMARKED LANES AHEAD

DIRECTIONAL
USE DETOUR

DIRECTIONAL
USE DETOUR ROUTE

DIRECTIONAL
USE LEFT LANE

DIRECTIONAL
USE RIGHT LANE

DIRECTIONAL
VEHICLES CROSSING

DIRECTIONAL
WATCH FOR ROCKS ON ROAD

DIRECTIONAL
WATCH FOR ROCKS ON ROAD

DIRECTIONAL
WATCH FOR STOPPED TRAFFIC

DIRECTIONAL
YIELD

DIRECTIONAL
YIELD AHEAD

FIRE
EXTREME FIRE DANGER LOCAL BANS IN EFFECT

FIRE
EXTREME FIRE DANGER NO OPEN BURNING BURNING NO FIREWORKS

FIRE
HIGH FIRE DANGER LOCAL BANS IN EFFECT

INFO
CLICK IT OR TICKET! BUCKLE UP, PLEASE

INFO
FOR ROAD AND WEATHER INFO CALL 303-639-1111

INFO
STOCK SHOW PARKING TUNE RADIO TO AM 530

INFO
TUNE RADIO TO AM 530

TRUCKS
BRIDGE WEIGHT LIMIT AHEAD

TRUCKS
LOW BRIDGE AHEAD

TRUCKS
LOWER RUNAWAY TRUCK RAMP OCCUPIED

TRUCKS
RUNAWAY TRUCK RAMP

TRUCKS
RUNAWAY TRUCK RAMP CLOSED

TRUCKS
RUNAWAY TRUCK RAMP OCCUPIED

TRUCKS
TRUCKS USE LEFT LANE

TRUCKS
TRUCKS USE LOW GEAR

TRUCKS
TRUCKS USE RIGHT LANE

TRUCKS
LANES SHIFT AHEAD

WEATHER
ADVERSE CONDITIONS AHEAD

WEATHER
BLOWING SNOW AHEAD

WEATHER
BRIDGES MAY BE ICY

WEATHER
DENSE FOG AHEAD

WEATHER
DRIFTING SNOW ON ROAD

WEATHER
FLOODED ROAD AHEAD

WEATHER
FOG AND ICY CONDITIONS MAY EXIST

WEATHER
FOGGY CONDITIONS MAY EXIST

WEATHER
GUSTY WINDS AHEAD

WEATHER
HEAVY FOG AHEAD

WEATHER
HEAVY SNOW AND SPLASHBACK

WEATHER
HIGH WIND ADVISORY

WEATHER
HIGH WIND RESTRICTION

WEATHER
HIGH WIND RESTRICTION HIGH PROFILE VEHICLES MAY BE STOPPED

WEATHER
ICY CONDITIONS MAY EXIST

WEATHER
POOR VISIBILITY AHEAD

WEATHER
REDUCED VISIBILITY AHEAD

WEATHER
REDUCED VISIBILITY BLOWING SNOW

WEATHER
ROAD ICY AND SNOWPACKED

WEATHER
ROAD ICY IN SPOTS

WEATHER
ROAD MAY BE ICY IN SPOTS

WEATHER
ROAD SNOWPACKED

WEATHER
ROAD SNOWPACKED AND ICY IN SPOTS

WEATHER
ROAD SNOWPACKED IN SPOTS

WEATHER
SNOWSLIDE AHEAD

WEATHER
WATER ON ROAD

WEATHER
WINTER DRIVING CONDITIONS AHEAD

WEATHER
WINTER DRIVING CONDITIONS AHEAD

Appendix B

COMMON ABBREVIATIONS

Abbreviations well understood by drivers	Words and word combinations well understood with a prompt word (prompt word examples in parentheses)	Abbreviations with multiple interpretations (shown in parentheses) or completely misunderstood AVOID USING THESE
BLVD CNTR CONST EMER ENT EX EXPWY FRWY, FWY HWY INFO LFT MAINT NORM PKING RD SERV SHLDR SLIP SPD TRAF TRVLRS WARN	(FOG, ACCIDENT) AHD ACCDT AT (LANE) BLKD ACCS (ROAD) ACCES RD (Bridge Name) BRDG CHEM (SPILL) COM (VEHICLES) CONST (AHEAD) (TO) DWNTN (NEXT) EX, EXT EXP (LANE) FWY BLKD HAZ (DRIVING) 1(25) US - (85) LFT LN LN CLSD MM (281) MAJ (ACCIDENT, ACCDT) MNR (ACCIDENT, ACCDT) (20) MI (20) MIN OVSZ (LOAD) PREP (TO STOP) (WET) PVMT (AIR) QLTY RD WK RGT LN (BEST) RT (ON) SHLDR (E-470) TRNPK (STALLED, EMER) VEH E, W, N, S (street name) UPR, LWR (LEVEL, LVL) WT (LIMIT)	ALT RT ACC (accident, access) DLY (delay, daily) EB, WB, NB, SB FEED RD FRNTG RD INCDT, INCID INTCH MAJ CONG LT (left, light) STAD (stadium, standard) L (left, lane) PARK (parking, park) RED (red, reduce) POLL (pollution, poll) FDR (feeder, federal) LOC (local, location) TEMP (temporary, temperature) CLRS (clears, colors) WRNG (warning, wrong) VIC