

Guidelines for the Operation of Permanent Variable Message Signs

May 2013



Oregon Department of Transportation
Traffic-Roadway Section

<http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/index.aspx>

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Under Oregon Revised Statute 810.200 and authority delegated by the Oregon Transportation Commission, the State Traffic-Roadway Engineer is responsible for adopting standards related to the design and operation of traffic control devices on state highways. Since variable message signs are traffic control devices, their operation is under the authority of the State Traffic-Roadway Engineer.

The original *Guidelines for the Operation of Variable Message Signs on State Highways* were developed by the Department in 1995. The *Guidelines* are periodically revised and updated and were last updated in 2008. This revision updates responsibilities and authorities, and reflects the changes adopted with the *Manual on Uniform Traffic Control Devices (MUTCD 2009)*.

Approved by the State Traffic-Roadway Engineer
In consultation with the Oregon Traffic Control Devices Committee



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Date: 5/31/13

Date: 5/29/13

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Summary of Notable Changes & Clarifications to *VMS Guidelines*

General

- Title changed from “Guidelines for the Operation of Variable Message Signs on State Highways” to “Guidelines for the Operation of Permanent Variable Message Signs”.
- Removed guidance that was specific to portable VMS. This guidance will be included in the “Oregon Portable Changeable Message Sign Handbook”, a new guidance document being prepared by the Traffic-Roadway Section.
- Removed guidance related to placement of VMS. The removed language will be added to the existing language in the ODOT Traffic Manual section for VMS.

Section V. Use of Color and Graphics on VMS

- New language addresses the use of color and graphics on VMS.

Section VII. Message Selection, Length, and Units of Information

- Guidance related to Units of Information has been included.
- Messages are now limited to no more than two phases unless special circumstances such as limited space or the lack of another available sign dictate the use of three phases.

Section X. Guidance for Specific Message Types

- Public Service Announcements (PSA) are no longer subject to a five hour per day limit provided other stipulations, requirements, limitations, and approvals are met. Additional guidance added.
- Fire Danger messages will still need to be approved by the State Traffic-Roadway Engineer.
- Air quality alerts will continue to be approved at the Region level.

Supplements A & B. Standard VMS Messages

- Supplements A and B have been reformatted for the typical large VMS signs (18 characters per line, three lines per phase).

Guidelines for the Operation of Permanent Variable Message Signs

I. Scope

A variable message sign (VMS) is a traffic control device whose message can be changed manually, electronically, mechanically, or electromechanically to provide motorists with information about traffic congestion, traffic crashes, maintenance operations, adverse weather conditions, roadway conditions, organized events, or other highway features (e.g., drawbridges, toll booths, weigh stations, etc.). A VMS may be referred to as a changeable message sign (CMS) or a dynamic message sign (DMS) in some publications.

Permanent VMS are signs installed on permanent supports or bridge structures.

Portable VMS (PVMS) or changeable message signs (PCMS) are variable message signs that can be moved to a location as required, either mounted on a trailer or on a motor vehicle. They are generally capable of displaying three lines of text with eight characters per line.

In the MUTCD, these signs are referred to as Changeable Message Signs (CMS). Throughout this document the term VMS is synonymous with CMS.

These guidelines are intended to aid ODOT in effectively utilizing permanent VMS on state highways; they may or may not be appropriate for use by local agencies. A separate ODOT document (PCMS Handbook) is available that contains additional guidance that is specific to the placement, protection, and use of PCMS. Both VMS and PCMS must follow the standards found in the MUTCD.

Single purpose signs such as dynamic curve warning signs, blank-out signs, and “Your Speed Is XX” are special types of VMS and are not addressed in these guidelines. These signs are typically much smaller than standard permanent VMS. Variable speed signs, turn restrictions, and over-height signs are other examples of these types of signs. These types of signs are often specifically designed for their intended use and they are not addressed in these guidelines. The State Traffic-Roadway Engineer has authority over placement and operation of these types of traffic control devices on State Highways.

These guidelines clarify the use and operation of VMS on state highways in Oregon and they supplement (not replace) the guidance given in the MUTCD. These guidelines also state the appropriate level of authority within ODOT for decisions related to VMS.

II. Placement and Design of New VMS

Guidance for the placement of new permanent VMS is available in the ODOT Traffic Manual, MUTCD, and from the Intelligent Transportation Systems (ITS) Unit of the Maintenance & Operations Branch. The State Traffic-Roadway Engineer must approve the location of all permanent VMS installations prior to inclusion in the *Statewide Transportation Improvement Program (STIP)* or commencement of design work.

The ITS Unit maintains the design standards for VMS in conjunction with the Traffic Roadway Section. Contact the ITS Unit for additional information on the available types of signs, design specifications, and mounting considerations for specific applications.

III. General Requirements of VMS Use

The display of messages on VMS should follow the guidance of the MUTCD and these guidelines. Messages should meet the guidance for purpose, priority, and composition as described in Sections VI and VII.

VMS messages typically fall into one of following three general types of messages:

- Standard
- Non-standard
- Public Service Announcements

Standard messages from *Supplement A* or *Supplement B* may be used as deemed necessary by VMS operators in a Transportation Operations Center. Non-standard messages should be approved by the Region Traffic Engineer/Manager or his/her designee. The display of public service announcements (except air quality alerts) on VMS requires the approval of the State Traffic-Roadway Engineer for each campaign as described in Section X.

IV. Coordination with Highway Advisory Radio

VMS messages shall not conflict with the broadcast messages of Highway Advisory Radio (HAR) operating in the area.

V. Use of Color and Graphics on VMS

The colors used for the legends and backgrounds on VMS shall be as provided in the table of "Common Uses of Sign Colors". (See Table 2A-5 of the 2009 MUTCD, or equivalent table in superseding MUTCD). A single VMS phase may be used to display a standard static sign as allowed by the MUTCD. The image shall be a reasonable approximation of the standard MUTCD sign. Text may be combined with an image of a standard MUTCD sign on a single VMS phase.

VI. Message Purpose and Priority

Message Purpose

The primary purpose of any VMS is to provide information that supports quick and appropriate decisions by motorists in response to roadway, traffic, or adverse weather conditions. VMS should be used to enhance public safety, which is ODOT's first priority. With a few limited exceptions, VMS messages should only be displayed when some response or decision by motorists is expected. In general, drivers need to know what they should do and the reason for doing it.

Advertising messages, including tourist information, shall not be displayed on any VMS. An advertising message is any wording that promotes an event, place, or product by name and for promotional purposes. For example:

Advertising Message: (Not Allowed)

OREGON STATE FAIR
TODAY THRU SUNDAY
SALEM

Allowed Message:

OREGON STATE FAIR
NEXT 3 EXITS

Message Credibility

Messages should be relevant to the current conditions. Do not display a message if doing so would adversely affect respect for the VMS.

Message Priority

Daily and seasonal occurrences or site specific operations objectives may alter the priority for displaying messages. The standard priority of displayed messages is the following:

1. Drawbridge operations, road or ramp closures, and emergency situations;
2. Incident or crash;
3. Lane control or queue warning messages;
4. Adverse weather or environmental conditions and related regulations such as chain restriction information, icy conditions, and tsunami warnings;
5. Construction or maintenance operations;
6. Amber Alert messages (see Section X for additional information);
7. Traffic operations information associated with special events such as car shows or sports events (see Section X for additional information);
8. Travel time information (see Section X for additional information);
9. Air quality alerts as approved by the Region Traffic Engineer/designee (see Section X for additional information);
10. Public Service Announcements approved by the State Traffic-Roadway Engineer (see Section X for additional information); and
11. Test messages.

VII. Message Selection, Length, and Units of Information

Messages inform all road users what to expect, where and when to expect it, and how they might react to it – in the simplest way possible. Use the simplest and fewest words

possible to clearly convey the message. Traffic Engineering Services Unit staff is available to assist with message development.

Standard Messages

Message familiarity results in faster understanding and response, so the standard messages should be used whenever possible. Select routine messages for VMS from *Supplement A* or *Supplement B*.

Non-standard Messages

Unusual circumstances may require composing unique messages. If a situation requires a message not on the lists of standard messages, the message should be approved by the District Manager, Region Traffic Engineer or their designee. For statewide or multi-regional events, the State Maintenance & Operations Engineer may approve non-standard messages. The following factors should be considered:

1. All messages should relate to the reasons listed in *Section VI, Message Purpose and Priority*.
2. A message should consist of only the following items. The list is generally in order of importance. Choose the most important information to display given the circumstances, message size limit, and desired driver response:
 - a) the problem statement (e.g., crash ahead, road work, left lane closed)
 - b) the location statement (e.g., ahead 1 mile, exit 214, Brucker St)
 - c) an action statement (e.g., exit, prepare to stop) if needed,
 - d) a time period if needed (e.g., Tu – Fri, 8 PM – 6 AM),
 - e) an attention statement if the message is being directed at a segment of drivers (e.g., through traffic, all trucks).

For instance, if the road is closed to all over-width trucks but not to other vehicles, an attention statement (item e) is needed plus the road closure announcement and directions for the detour.

If the road ahead is now closed to all vehicles, the first three items of information (road closed ahead 1 mile, exit at Brucker St.), would be enough information.

3. Unnecessary words (e.g., 'a', 'an', 'the') should be eliminated unless the intent of the message becomes unclear without them.
4. Use abbreviations only when necessary to fit the message properly on the display type.
 - Only abbreviations listed in *Supplement C* should be used.
 - For abbreviations not listed, use the most common abbreviation or form an abbreviation by removing letters from the end of the word.
 - All abbreviations are displayed without a period.
5. Messages should be displayed on one phase if possible. If it is necessary to use a second phase, each phase should consist of meaningful pieces of information that

is clear on its own. There are pre-approved exceptions for specific messages such as snow zone chain condition messages on PCMS where up to three phases may be used.

6. For example:

	Example 1 (good)	Example 2 (poor)
Phase 1	LEFT LANE CLOSED AT EXIT 214	LEFT LANE CLOSED AHEAD
Phase 2	TRUCKS RIGHT LANE ONLY	AT EXIT 214 TRKS RT LANE ONLY

7. Leave out expected, non-essential, or implied actions or information to keep the message short and simple.

Examples:

- drivers expect to have to merge right when they see LEFT LANE CLOSED;
- CRASH AHEAD implies the need for caution;
- FOLLOW DETOUR rather than FOLLOW DETOUR ROUTE displays the essential information with fewer words;
- LEFT LANE CLOSED AHEAD is more essential information than ROAD WORK AHEAD.

Message Length and Units of Information

The maximum length of a message is dictated by the number of units of information contained in the message, in addition to the size of the VMS. A unit of information is a single answer to a single question that a driver can use to make a decision. Examples of a unit of information are "CRASH AHEAD" and "PREPARE TO STOP". The maximum recommended number of units of information in a message is limited by the size of the VMS, the lighting conditions and visibility of the VMS, and the speed of approaching drivers.

When designing and displaying messages on VMS, the following requirements and preferences apply:

1. Each message shall consist of no more than two phases unless special circumstances such as limited space or the lack of another available sign dictate the use of three phases.
2. A phase shall consist of no more than three lines of text.
3. Each phase shall be understood by itself regardless of the sequence in which it is read.
4. Only one unit of information should appear on each line of the VMS.
5. A unit of information should not be more than four words.

6. The minimum time that an individual phase is displayed should be based on 1 second per word or 2 seconds per unit of information, whichever produces a lesser value. The display time for a phase should never be less than 2 seconds.
7. The maximum cycle time of a two-phase message should be 8 seconds.
8. The duration between the display of two phases should not exceed 0.3 seconds.
9. No more than four units of information should be in a message when the traffic operating speeds are 35 mph or more.
10. No more than five units of information should be in a message when the traffic operating speeds are less than 35 mph.
11. A unit of information consisting of more than one word may be displayed on more than one line.
12. Reduce the message size information for heavy traffic volumes, bad weather, or other highly demanding driving environments.

VIII. Display of Speed, Location, and Time Within a Message

Display of Speed

Speeds displayed on a VMS are advisory or warning, (similar to a Curve Warning sign) rather than regulatory unless there is a speed zone order from the State Traffic-Roadway Engineer that specifically states the speed will be posted by variable message sign.

- Messages like “SLOW,” “REDUCE SPEED,” etc., are preferred to numeric speeds because they tell the driver what action they should take.
- Avoid using numeric speeds in the message unless the use is specifically approved by the Region Traffic Engineer or their designee.
- The posted speed may be displayed to reinforce the ground signs.

Display of Location

Display the distance to a location such as a road work area, detour start or lane closure in miles. Distances may incorporate the fractions $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ mile. Distances less than $\frac{1}{4}$ mile should be shown in feet (rounded to the nearest 100 feet).

If the exit numbers or place names are shown on guide signs before or just after the VMS, the exit number or place name such as Ashland or Santiam Pass may be used in place of “NEXT EXIT”, especially if the sign is located farther than 2 miles from the exit.

- Exit numbers are preferred on interstate highways since they are prominently posted both before and at the exits.
- When place names are used, they should be the same as those shown on guide signs in the vicinity of the VMS.
- Local names or landmarks should be avoided unless the name is shown on the permanent guide signs on the highway..

- Reference to “NEXT EXIT,” “2ND EXIT,” etc. may be preferable to actual distances or exit numbers when there are multiple exits.
- ‘AHEAD’ can be dropped from messages such as ‘LANES NARROW’ if the action needed is immediate.

Display of Time

1. Time displayed in the VMS message shall relate to the standard 12-hour format using “AM” and “PM” designation, and express local time. “A” or “P” can be used at the discretion of the person posting the message. The abbreviations “MIN” and “HR” should be used.
2. For an entire day or number days, the time period shall be displayed in days of the week. Include dates only if the advisory is for an event in a future week. For instance:

A message about a road impact next Tuesday would read

ETHAN AVE CLOSED
TUESDAY – THURSDAY

but if the closure is two weeks away the message would read

ETHAN AVE CLOSED
JULY 12-14
TUES – THURS.

3. Travel time displays should include a destination. For Example:

TRAVEL TIME
TO FRONT AVE
20 MIN

IX. Displaying, Altering, and Removing Messages

Line and Character Dimensions

1. VMS messages should be limited to no more than 20 characters per line. Spaces between words are not included in this limit.
2. Refer to the 2009 MUTCD (Section 2L.04) for guidance on character heights, widths, stroke widths, and spacing.
3. Word messages on VMS should be composed of all upper-case letters.
4. Messages should be centered line by line.

Message Displays

1. All messages displayed on a VMS shall conform to the priority listing given in *Section VI, Message Purpose, and Priority*.
2. All messages displayed on a VMS should conform to the guidance given in *Section VII, Message Selection, Length, and Units of Information*.

3. Techniques of message display such as fading, exploding, dissolving, or scrolling shall not be used. The text of messages shall not flash. Arrows can be flashed.
4. Beacons, if available, may only be flashed with messages of priority 1 through 6 as listed in *Section VI*.
5. Single phase messages should be continuously displayed. Alternatively displaying a single phase message and a blank phase implies to the observer that new information may be displayed. It also gives the drivers less time to read the message.
6. Each message, including all phases, should be displayed so that it can be read at least twice by drivers traveling at the posted speed. See *Section VII* regarding Units of Information.
7. Messages that could adversely impact a facility operated or maintained by another jurisdiction should be avoided. Contact the road authority of the affected jurisdiction prior to displaying such a message. When an emergency plan or other interagency agreement exists about rerouting traffic, follow the procedures in that plan or agreement.
8. Messages that could impact traffic at another VMS location should not be displayed or removed without first contacting the VMS operator at the affected location.
9. Messages should not project anticipated road conditions due to expected extreme weather more than 24 hours in advance.
10. Information on extended road or lane closures for construction or maintenance activities should be displayed beginning two weeks in advance of the closure unless directed otherwise by the Region Traffic Engineer, Construction Project Manager, District Manager, or project traffic control plans as appropriate for the situation.
11. When a message display is ended, restore the earlier message if it is still relevant.
12. Prior to the display of non-standard messages, the message spelling, layout, and intent should be verified by the TOC Manager, Region Traffic Engineer, District Manager or their designee.
13. If a message is directed at an individual vehicle (such as a dynamic curve warning sign), these applications require State Traffic-Roadway Engineer approval.

X. Guidance for Specific Message Types

Adverse Weather Conditions and Chain-up Requirements

It is not possible to display messages regarding adverse weather conditions (high winds, icy conditions, etc) everywhere or every time they occur. District maintenance personnel are generally in the best position to determine the need for chain-up requirements or to post other messages related to adverse weather conditions.

Messages related to icy conditions should only be posted if conditions are unusual and not normally experienced on that section of roadway. Black ice or ice that develops rapidly are examples of unusual conditions. Previous ice-related incidents or crashes at the location could provide additional support for providing motorists information about the current situation. If needed, a VMS can be used to display an ice-related message. An acceptable message is "WATCH FOR ICE" which may be followed by the additional

message “NEXT xx MILES”. The message “ICE” on a single static phase may also be used in the same manner as Sign OW 15-13 in the *State Sign Policy & Guidelines*. The message should be removed when the conditions no longer require its display.

Messages to warn drivers of unusually high wildfire conditions may be displayed on selected VMS when the US Forest Service, the State Department of Forestry, or the Bureau of Land Management determine that fire danger is extreme (Industrial Fire Precaution Level 4) and there is the potential for operation of the highway to be affected. The need for posting such messages is higher when there are more travelers in a rural area who may be unfamiliar with the local fire risk (e.g. opening weekend of hunting season). Each posting of these types of messages requires the approval of the State Traffic-Roadway Engineer.

Amber Alerts

The Amber Plan, established in October 2002 by Executive Order No. 02-22, uses the Emergency Alert System, television, radio, and the state highway variable message system to provide timely emergency information to the public regarding a child abduction. The messages posted on a VMS are referred to as Amber Alert messages.

Operation

- A. An Amber Alert message shall only be posted when there is verification of a legitimate Amber Alert activation from the Oregon State Police (OSP) Northern Communications Center.
- B. No Amber Alert message shall be displayed on an ODOT VMS at the request of any other law enforcement offices.
- C. When an Amber Alert is active, ODOT Transportation Operations Centers will activate all fixed VMSs unless otherwise directed in the Amber Alert activation notice.
- D. When a sign is needed to warn motorists of conditions on the highway needing their immediate attention, an Amber Alert message should not be displayed.
- E. The following uses will typically have higher priority than the display of an approved Amber Alert message (Section VI, Conditions Warranting Message Display):
 1. Drawbridge operation, road or ramp closure, and emergency situations;
 2. Incidents or crashes;
 3. Construction or maintenance operations;
 4. Lane Control or Queue Warning; and
 5. Adverse weather or environmental conditions.
- F. Unless the Amber Alert is updated with additional vehicle information, or reissued, the message should be displayed for no more than eight hours or until the Amber Alert is officially called off, whichever occurs first. Exceptions are:
 1. Extension: If the issuing agency requests an extension, two hours will be added to the remaining display time. If still needed, an additional 2 hour extension may be given at the request of the issuing agency.

2. Update: If an update is needed such as new color, make or model of the vehicle or license plate information, any VMS previously activated will be updated with the new information. If the update is within the first four hours of the Amber Alert, the message will continue to be activated for the original eight hour period. If the update occurs after the first four hours of an Amber Alert, the updated message will be extended two hours beyond the original eight hour period.
 3. If the Amber Alert occurs between 8 PM and 1 AM, the Amber Alert will remain active until 9 AM the following morning or until the Amber Alert is officially called off, whichever occurs first.
- G. Any information regarding vehicle updates, extensions and/or cancellations will be shared with all other TOCs.

Approved Amber Alert Messages

- A. No phone numbers are to be placed on VMS
- B. Two phase Amber Alert message:

Phase A:

AMBER
ALERT

Phase B:

[VEHICLE DESCRIPTION]
[LICENSE PLATE NUMBER]

- C. If an Amber Alert is activated and there is no vehicle license plate information, the message will be placed as follows:

AMBER ALERT
TUNE TO
LOCAL NEWS

Examples:

- A. Vehicle descriptions:
 1. 18 character sign: BLACK CHEVY P.U.
 2. 12 character sign: BLACK PICKUP
- B. License plate number:
 1. 12 or 18 character sign: OR PLATE XYZ 123

Recordkeeping

Files of messages, display times, and the operator who posted the message should be maintained. Records may be electronic or other media and should be secure and accessible for review, retrieval, and printing.

Special Events Messages

If a special event is likely to impact traffic operations, a message may be displayed on a VMS to inform drivers about exit and parking information. Messages should be approved by the Region Traffic Engineer and should follow the examples given in *Supplement B*. If an attraction qualifies as a “destination”, a message may be appropriate but should avoid direct mention of a specific private establishment or event.

Travel Time Information

Messages relating to travel time information may be displayed at the discretion of the Region Traffic Engineer. When displaying travel time information the following shall be considered:

1. There shall be an established program for disseminating travel time information on the corridor or route on which the sign is situated.
2. There shall be a means for determining travel time to ensure that the information is accurate and real time.
3. Display of a message of a higher priority must be able to override the travel time message display.
4. Strobe or flashing lights shall not be used in conjunction with travel time information.
5. Travel time information displayed should not be for more than two highway sections/corridors. Normally the highways should be alternate route choices to each other and should be routes that are in close proximity to the sign.

See *Supplement B* for the format to be used to display travel time information.

Air Quality Alerts

Messages related to air quality or alternative transportation options may be displayed during the 24-hour period preceding an air quality alert day as determined by the Region Traffic Engineer/Manager or designated representative in cooperation with the Department of Environmental Quality (DEQ). An example of an air quality alert is: SMOG ADVISORY / SAT-MON / DRIVE LESS.

Public Service Announcements

A Public Service Announcement (PSA), as it pertains to display on a VMS on the public roadway, is a brief message that does not require an immediate response but encourages the driver to change a future behavior. PSA messages shall be transportation-related messages such as “DRIVE SOBER, SAVE LIVES” or “CLICK IT OR TICKET”. They may be related to new transportation-related laws as well.

In general, VMS are used to provide critical information to warn the driver of situations ahead. PSA messages, on the other hand, try to influence drivers to change driver behaviors. Limited research has been performed on the effectiveness of road safety messages displayed on VMS. One study suggested that PSA's provide a small, short term effect on driver behavior, but messages must not overload the driver. It has been

suggested that a constant airing of PSA messages may result in some drivers ignoring more important messages. Additionally, messages on VMS can distract drivers from the driving task to the point where drivers may be seen to brake when a message is displayed. Decreased spacing and increasing lane change behavior has been observed.

The effect that PSA messages have on driver behavior is being studied at this time¹. One conclusion that has been established is that added messages on VMS can present conflicting demands on the driver. Surveys have shown that some drivers support the use of VMS for road safety messages and argue they are underutilized devices; some voice a concern that they are unneeded distractions. Despite the lack of conclusive research and the debate over the use of VMS, limiting the use of PSA messages to short time periods and short clear messages provides some balance to possible detriments. It provides a certain amount of use for road safety messages yet maintains the integrity of the VMS for messages that require a more immediate response from drivers.

When displaying a PSA on a VMS, the following limits and guidance apply:

1. The State Traffic-Roadway Engineer shall approve the text of all PSA messages prior to each period of their use.
2. A PSA shall have the lowest message priority and shall be displayed only at the discretion of the State Traffic-Roadway Engineer.
3. A PSA shall be limited to a single phase containing no more than eight words (about four to eight characters per word).
4. Strobe or flashing lights shall not be used in conjunction with a PSA.
5. A PSA should not be displayed during peak periods or when traffic is congested.
6. A PSA shall be related to a driver behavior, a new law, driver safety or a related transportation issue, such as seat belt use, drinking and driving, distracted driving, aggressive driving, speeding, drowsy driving, or advocating another mode of travel during periods of air quality concerns. These messages are typically approved in conjunction with an enforcement campaign.
7. Except for high travel holidays, PSA messages shall be displayed only as supplementary to currently active local or statewide transportation safety media campaigns that are accompanied by enforcement campaigns on the same topic. During high-travel holidays, PSA messages may be displayed in conjunction with enforcement-only campaigns.
8. The total duration of the display should not exceed more than five days per month at any VMS location.
9. Consideration should be given to limit transportation safety PSA messages to certain areas of the state where most applicable.
10. The workload associated with posting PSA messages is significant. It is recognized that PSA messages will only be posted as staff workload permits.

¹ ODOT's policy regarding PSA messages will be reassessed upon the conclusion of a pooled-fund research project currently underway by FHWA titled: "Effectiveness of Safety and Public Services Announcement messages on DMS". No project website is available at this time. The project is expected to be completed in February of 2014.

Examples of PSA messages include:

DON'T DRINK / AND DRIVE
DRIVE SOBER / SAVE LIVES
DRIVE LESS / SAVE MORE
CLICK IT OR TICKET
BUCKLE UP FOR SAFETY
NEW LAW / HANDS FREE ONLY / NO TEXTING
HANG UP / AND DRIVE
DRIVE SOBER / OR GET / PULLED OVER
DRIVE SAFE / WORK ZONE / SAFETY MONTH

Test Messages

Test messages on a permanent VMS should be clearly identified and, if possible, displayed only during non-peak traffic periods. (See *Supplement B* for suggested test messages.)

XI. Glossary

The following definitions are included here for reference to terms used in this document only. These definitions do not apply to terms found in Oregon Revised Statutes, Oregon Administrative Rules, MUTCD, or any other design guide or policy.

Air Quality Alert – a message posted to warn the public of a high concentration of pollutants in the air

Amber Alert – a message posted on a VMS or broadcast on local television and radio stations to inform the public regarding a child abduction.

Phase – the set of words displayed and visible at a particular moment in time on a VMS board. A phase may be referred to as a “panel” or a “page” in some reference documents.

Public Service Announcement (PSA) – a message that does not require an immediate response but encourages the driver to change a future behavior. They may be related to driving under the influence of alcohol or drugs, new transportation-related laws, seat belt use.

Unit of information – the set of words that form a single answer to a single question that a driver can use to make a decision.

Supplement A

Standard Message List for VMS

TRAFFIC MANAGEMENT:

Phase 1	Phase 2	Abbreviations & Notes
ABRUPT / EDGE / LEFT		
ABRUPT / EDGE / RIGHT		
DO NOT PASS / STAY IN LANE		
DO NOT STOP / NO PARKING / ON SHOULDER		
EXIT CLOSED AHEAD / USE NEXT EXIT		
LEFT EXIT OPEN		
HEAVY TRAFFIC / AHEAD / PREPARE TO SLOW		
HEAVY TRAFFIC / AHEAD / PREPARE TO STOP		
LANE / NARROWS / AHEAD		
LANES SHIFT LEFT / AHEAD		
LANES SHIFT RIGHT / AHEAD		
LANE ENDS / MERGE LEFT		
LANE ENDS / MERGE RIGHT		
LEFT EXIT OPEN		
LEFT LANE CLOSED / MERGE / RIGHT		
LEFT LANE CLOSED / 1000 FT		
LEFT LANE CLOSED / X MILE / MERGE RIGHT		
LEFT LANE NARROWS / NO TRUCKS		
LEFT 2 LANES / CLOSED / USE RIGHT LANE		
MERGE / LEFT		
MERGE / RIGHT		
MERGE AHEAD / TRAFFIC ENTERS / ON LEFT		
MERGE AHEAD / TRAFFIC ENTERS / ON RIGHT		
NO CENTER STRIPE / KEEP RIGHT		
NO LANE LINES / USE CAUTION		
NO LANE LINES / KEEP RIGHT / EXCEPT TO PASS		
NO SHOULDER / DO NOT STOP		
RIGHT EXIT OPEN		
RIGHT LANE CLOSED / MERGE LEFT		
RIGHT LANE CLOSED / 1000 FT		
RIGHT LANE CLOSED / X MILE / MERGE LEFT		
RIGHT LANE NARROWS / NO TRUCKS		
RIGHT 2 LANES / CLOSED / USE LEFT LANE		
ROAD CLOSED AHEAD / LOCAL TRAFFIC ONLY		note: only use AHEAD for advance
ROAD CLOSED AHEAD / USE DETOUR		note: only use AHEAD for advance
ROAD CLOSED X MILE(S) / USE DETOUR		
ROAD NARROWS / AHEAD		
ROUGH PAVEMENT / AHEAD / PREPARE TO SLOW		(PAVEMNT)

Notes: The '/' mark separates lines on a phase and are not part of the message.

"LEFT" is generally interchangeable with "RIGHT" (and vice versa) in this list of standard messages.

Phase 1	Phase 2	Abbreviations & notes
ROUGH ROAD AHEAD / SLOW		
SHARP CURVE AHEAD / SLOW		
SLOW TRAFFIC AHEAD / PREPARE TO SLOW		
SOFT SHOULDER / USE CAUTION		(SHOULDR)
STAY IN LANE / NO LANE CHANGES		
STEEP GRADE / SLOW TRUCKS		
SUNKEN PAVEMENT / SLOW		
TRAFFIC DELAYS / PREPARE TO SLOW		
TRAFFIC DELAYS / PREPARE TO STOP		
TRUCKS CROSSING RD / USE CAUTION		(XING; CROSSNG)
TWO-WAY / TRAFFIC / AHEAD		(2 WAY)
WARNING / CROSS TRAFFIC / AHEAD		
WATCH FOR TRUCKS / TRUCKS ENTER RIGHT		
YIELD AHEAD		
YIELD AHEAD / YIELD TO ONCOMING		(ONCOMNG)

WORK ZONE MANAGEMENT:

Phase 1	Phase 2	Abbreviations & notes
CREW PAINTING / CENTER LINE / KEEP TO RIGHT		(PAINTNG)
DETOUR AHEAD / FOLLOW / DETOUR SIGNS		
DETOUR NEXT LEFT / FOLLOW / DETOUR SIGNS		
DETOUR 1000 FT / FOLLOW / DETOUR SIGNS		
DETOUR / X MILE(S) / AHEAD	FOLLOW / DETOUR / SIGNS	(XX MI)
FLAGGER AHEAD / 1 MILE / PREPARE TO STOP		
FLAGGER AHEAD / PREPARE TO STOP		
FRESH OIL / ON ROAD / SLOW		
FRESH TAR / ON ROAD / SLOW		
MEDIAN WORK AHEAD / USE RIGHT LANE		
MEDIAN WORK / KEEP RIGHT		
MOWERS IN MEDIAN / MOWING / NEXT ¼ MILE		
MOWERS IN MEDIAN / MOWING / NEXT X MILE(S)		
RAMP CLOSED AHEAD / USE NEXT EXIT		
PILOT CAR / 1 MILE / PREPARE TO STOP		
PILOT CAR AHEAD / PREPARE TO STOP		
ROAD WORK AHEAD / NEXT X MILE(S)		
ROAD WORK AHEAD / USE LEFT LANE		
SHOULDER WORK / WORK ON SHOULDER		
SHOULDER WORK / SHOULDER CLOSED / X MILES		(XX MI)
SHOULDER WORK / AHEAD / USE CAUTION		
SHOULDER WORK / AHEAD / USE LEFT LANE		
SHOULDER WORK / WORKERS / ON SHOULDER		
SLOW MOVING WORK / PREPARE TO SLOW		
SLOW MOVING WORK / LEFT LANE CLOSED		
SLOW MOVING WORK / KEEP RIGHT		

Notes: The '/' mark separates lines on a phase and are not part of the message.
 "LEFT" is generally interchangeable with "RIGHT" (and vice versa) in this list of standard messages.

Phase 1	Phase 2	Abbreviations & notes
SLOW MOVING WORK / SHOULDER CLOSED		(SHOULDR)
SLOW MOVING WORK / MEDIAN CLOSED		
SNOW BLOWERS AHEAD / DO NOT PASS		
SNOW BLOWERS AHEAD / PLEASE USE CAUTION		
SNOW BLOWERS AHEAD / USE LEFT LANE		
SNOW PLOW AHEAD / DO NOT PASS		
STRIPING TRUCKS / AHEAD / CENTER LANE CLOSED		(STRIPNG or PAINT)
STRIPING WORK / RIGHT / USE LEFT LANE		(STRIPNG or PAINT)
STRIPING WORK / CENTER / KEEP RIGHT		(STRIPNG or PAINT)
SURVEY WORK AHEAD / PREPARE TO STOP		
SURVEY WORK AHEAD / PREPARE TO SLOW		
SURVEY WORK AHEAD / USE LEFT LANE		
SWEEPER AHEAD / USE CAUTION		
SWEEPER AHEAD / USE LEFT LANE		
TUNNEL CLOSED / AHEAD / EXPECT DELAYS		
TUNNEL CLOSED / AHEAD / DETOUR NEXT LEFT		
TUNNEL CLOSED / AHEAD / USE OTHER ROUTE		
TUNNEL CLOSED / AHEAD / PREPARE TO STOP		
USE DETOUR ROUTE / FOLLOW DETOUR / SIGNS		
USE DETOUR ROUTE / TURN NEXT RIGHT		
WET PAINT / STAY IN LANE		
WORKERS AHEAD / WATCH FOR WORKERS		
WORKERS IN MEDIAN / WATCH FOR WORKERS		
WORKERS IN ROAD / PLEASE SLOW		
WORKERS IN TUNNEL / PLEASE SLOW		
INCIDENT MANAGEMENT:		
<u>WEATHER-RELATED</u>		
ACTIVE SLIDES AHEAD / REDUCE / SPEED		
BLACK ICE LIKELY / USE / CAUTION		
BLOWING DUST AHEAD / NEXT X MILE(S)		
BLOWING DUST AHEAD / SLOW / TURN ON LIGHTS		
BLOWING SNOW AHEAD / NEXT X MILE(S)		
BLOWING SNOW AHEAD / SLOW / TURN ON LIGHTS		
DENSE FOG AHEAD / SLOW / TURN ON LIGHTS		
FREEZING FOG AHEAD / SLOW TURN ON LIGHTS		(FREEZNG)
FREEZING FOG LIKELY / USE CAUTION		(FREEZNG)
ICE ON BRIDGES / SLOW / USE CAUTION		
ICE ON ROAD / SLOW / USE CAUTION		
ROAD FLOODED / SLOW		
ROCKS ON ROADWAY / USE CAUTION		
SLIDE BLOCKS ROAD / PREPARE TO STOP		
SLIDE ON ROAD / KEEP RIGHT		

Notes: The '/' mark separates lines on a phase and are not part of the message.
"LEFT" is generally interchangeable with "RIGHT" (and vice versa) in this list of standard messages.

Phase 1	Phase 2	Abbreviations & notes
SNOW BLOWERS AHEAD / DO / NOT / PASS		
SNOW BLOWERS AHEAD / USE CAUTION		
SNOW BLOWERS AHEAD / USE LEFT LANE		
SNOW PLOW AHEAD / DO NOT PASS		
SNOW ZONE / CHAINS REQUIRED / ALL VEH		
SNOW ZONE / CHAINS REQUIRED / OVER 10,000 LBS		(REQUIRD; OVER10K)
SNOW ZONE / CARRY CHAINS		
WATCH FOR ICE / NEXT X MILE(S)		(XX MI)
WATER ACROSS ROAD / USE CAUTION		

Phase 1	Phase 2	Abbreviations & notes
NON-WEATHER EVENTS		
BURN AREA AHEAD / SLOW / TURN ON LIGHTS		
DEBRIS ON ROAD / KEEP LEFT		
DEBRIS ON ROADRIGHT / LANE / CLOSED		
DEBRIS ON ROAD / PREPARE TO STOP		
DEBRIS ON ROAD / EXPECT DELAYS		
DENSE SMOKE AHEAD / STOP ON / SHOULDER ONLY		(SHOULDR)
DENSE SMOKE AHEAD / SLOW / TURN ON LIGHTS		
DENSE SMOKE AHEAD / PREPARE TO SLOW		
DENSE SMOKE AHEAD / PREPARE TO STOP		
EXTREME FIRE DANGER / USE CAUTION		(Requires State Traffic-Roadway Engineer approval for each use)
FIRE AHEAD / PREPARE TO SLOW		
FIRE AHEAD / PREPARE TO STOP		
FIRE AHEAD / STOP ON / SHOULDER ONLY		(SHOULDR)
FREEWAY BLOCKED / AHEAD / PREPARE TO STOP		
FREEWAY CLOSED / AHEAD / ALL VEH MUST EXIT		
FREEWAY CLOSED / USE NEXT EXIT		
FREEWAY CLOSED / FOLLOW / DETOUR SIGNS		
SIGNAL OUT / ALL-WAY STOP AHEAD		
SIGNAL OUT / YIELD TO VEHICLE / ON RIGHT		
STALLED VEHICLE / PREPARE TO STOP		
STALLED VEHICLE / AHEAD / SHOULDER CLOSED		(SHOULDR)
STALLED VEHICLE / AHEAD / RIGHT LANE CLOSED		
STALLED VEHICLE / ON RAMP / KEEP LEFT		(ON EXIT; ON ENTRY)
CRASH AHEAD / CENTER LANE CLOSED		
CRASH AHEAD / EXPECT DELAYS		
CRASH AHEAD / LEFT LANE CLOSED		
CRASH AHEAD / LEFT 2 LANES / CLOSED		
CRASH AHEAD / KEEP RIGHT		
CRASH AHEAD / PREPARE TO STOP		
CRASH AHEAD / USE CAUTION		
CRASH AHEAD / USE CENTER LANE		

Notes: The '/' mark separates lines on a phase and are not part of the message.
"LEFT" is generally interchangeable with "RIGHT" (and vice versa) in this list of standard messages.

Phase 1	Phase 2	Abbreviations & notes
BRIDGES:		
BRIDGE CLOSED / AHEAD / USE DETOUR		
BRIDGE CLOSED / AHEAD / FOLLOW DETOUR		
BRIDGE OUT / AHEAD / USE DETOUR		
BRIDGE OUT / AHEAD / USE OTHER ROUTE		
BRIDGE WORK / AHEAD / LANES NARROW		
BRIDGE WORK / AHEAD / PREPARE TO STOP		
BRIDGE WORK / AHEAD / USE CENTER LANE		
BRIDGE WORK / AHEAD / WORKERS ON ROAD		
BRIDGE WORK / AHEAD / SLOW		
ONE LANE BRIDGE / PREPARE TO STOP		

Phase 1	Phase 2	Abbreviations & notes
TRUCKS:		
ALL TRUCKS / EXIT RIGHT		
ALL OVERSIZE / VEHICLES / MUST EXIT		(OVRSIZE)
ALL TRUCKS / USE RT LANE		(LEFT/CNTR LN)
ALL TRUCKS / KEEP RIGHT		
ALL TRUCKS / USE LOW GEAR		
ESCAPE RAMP 1 / CLOSED / TRUCKS USE RAMP 2		
ESCAPE RAMP / CLOSED		
OVERSIZE MUST EXIT / NEXT EXIT X MILE(S)		(OVRSIZE) (XX MI)
TRUCKS OVER 80,000 / MUST EXIT		
TRUCKS OVER 80,000 / USE NEXT EXIT		

*Notes: The '/' mark separates lines on a phase and are not part of the message.
 "LEFT" is generally interchangeable with "RIGHT" (and vice versa) in this list of standard messages.*

Supplement B
Additional Standard Messages for Display on Permanent Variable Message Signs

Below is a list of sample standard messages that are most often displayed on permanent VMS. These messages may be modified and new messages may be composed as deemed necessary by the Region Traffic Engineer/Manager or his/her designee. Consult Table 1A-1 in the MUTCD for a listing of acceptable abbreviations.

Phase 1	Phase 2
FREEWAY CLOSED AT EXIT nn	I-84 BOISE USE EXIT yyy DETOUR ROUTE OR203
FREEWAY CLOSED xx MILES	I-5 SEATTLE USE NEXT EXIT FOLLOW DETOUR SIGNS
FREEWAY BLOCKED KEEP RIGHT PREPARE TO STOP	
BRIDGE CLOSED xx MILES	ALL TRAFFIC USE I-405 LEFT LANES
SNOW ZONE	CARRY CHAINS OR TRACTION TIRES
SNOW ZONE	CHAINS REQUIRED** ON VEHICLES TOWING OR OVER 10000 GVW
SNOW ZONE CHAINS REQUIRED	TRACTION TIRES ALLOWED ON VEH UNDER 10000 GVW
DENSE FOG AHEAD LOW VISIBILITY	
EXTREME HAZARD FREEZING FOG	
WATCH FOR ICE NEXT xx MILES	
CRASH AHEAD USE RIGHT LANE*	
CRASH AHEAD PREPARE TO STOP	
CRASH xx MILES AHEAD LEFT LANE CLOSED	
CRASH xx MILES AHEAD	I-5 SEATTLE USE I-405 LEFT LANES
CRASH xx MILES AHEAD	CITY CENTER EXIT LLOYD BLVD
CRASH xx MILES AHEAD	FWY CLOSED AT NE 43RD AVE

Phase 1	Phase 2
CRASH xx MILES AHEAD	ALL TRAFFIC USE I-405 RIGHT LANES
CONSTRUCTION xx MILES AHEAD	WATCH FOR LANE RESTRICTIONS
SWEEPER AHEAD USE RIGHT LANE	
ROAD WORK xx MILES AHEAD USE RIGHT LANE	
SHOULDER WORK USE RIGHT LANE	
EVENT PARKING EXIT nn	
EVENT PARKING EXIT LLOYD BLVD	
EVENT PARKING FOLLOW I-5 SEATTLE	
EVENT PARKING USE I-5 RIGHT LANES	THRU TRAFFIC USE I-405 LEFT LANES
EVENT PARKING FOLLOW I-5 EXIT nn	
EXPO CNTR PARKING EXIT 306B RIGHT LANE ONLY	THRU TRAFFIC PORTLAND-SALEM LEFT LANE
TRUCKS ESCAPE RAMP UNDER REPAIR	
TRUCKS SECOND ESCAPE RAMP CLOSED	
MOBILE HOMES nn ROAD CLOSED	HIGH WINDS
MOBILE HOMES nn EXIT CLOSED	ROAD CONSTRUCTION
OVERSIZED VEH USE EXIT nn	I-84 CLOSED TO OVERSIZED VEH
TRAVEL TIME INFO VLY JCT-LINCOLN CTY xx MIN	
SIGN UNDER SYSTEMS TEST ODOT TEST	ODOT TEST SYSTEMS TEST
OREGON DEPARTMENT OF TRANSPORTATION	SIGN UNDER TEST

Supplement C

Standard Abbreviations for VMS

Due to limitations in the number of characters, abbreviations may occasionally be necessary on VMS. The following tables are to be used to determine the right abbreviation whenever one is needed. These tables may also be found in the MUTCD. Where multiple abbreviations for a word are permitted in the table, the same abbreviation should be used throughout a single jurisdiction.

Table 1 lists the acceptable abbreviations for many commonly used terms. Some of the abbreviations require the use of a prompt word which may precede or follow the abbreviation.

Table 2 lists abbreviations that shall not be used as they are easily mistaken for inappropriate words or have multiple possible common interpretations.

Table 1: Acceptable Abbreviations		
Word Message	Standard Abbreviation	Prompt Word
Afternoon / Evening	PM	
Alternate	ALT	
Avenue	AVE, AV	
Bicycle	BIKE	
Boulevard	BLVD*	
Bridge	BR	[Name]
CB Radio	CB	
Center (as part of a place name)	CTR	
Circle	CIR*	
Civil Defense	CD	
Compressed Natural Gas	CNG	
Court	CT*	
Crossing (other than highway-rail)	X-ING	
Drive	DR*	
East	E	
Electric Vehicle	EV	
Expressway	EXPWY*	
Feet	FT	
FM Radio	FM	
Freeway	FRWY, FWY*	
Friday	FRI	
Hazardous Material	HAZMAT	
High Occupancy Vehicle	HOV	
Highway	HWY*	
Hospital	HOSP	

Table 1: Acceptable Abbreviations – Cont'd

Word Message	Standard Abbreviation	Prompt Word
Hour(s)	HR, HRS	
Information	INFO	
Inherently Low Emission Vehicle	ILEV	
International	INTL	
Interstate	I-	[Number]
Junction / Intersection	JCT	
Lane	LN	Right, Left, or Center
Liquid Propane Gas	LP-GAS	
Maximum	MAX	
Mile(s)	MI	
Miles Per Hour	MPH	
Minimum	MIN	
Minute(s)	MIN	
Monday	MON	
Morning / Late Night	AM	
Mount	MT	
Mountain	MTN	
National	NATL	
North	N	
Parkway	PKWY*	
Pedestrian	PED	
Place	PL*	
Pounds	LBS	
Right	RT	
Road	RD*	
Saint	ST	
Saturday	SAT	
South	S	
State Route	OR	[Route Number]
Street	ST*	
Sunday	SUN	
Telephone	PHONE	
Temporary	TEMP	
Terrace	TER*	
Thursday	THURS	
Thruway	THWY*	
Tons of Weight	T	
Trail	TR*	
Tuesday	TUES or TU	
Turnpike	TPK*	

Table 1: Acceptable Abbreviations – Cont'd

Word Message	Standard Abbreviation	Prompt Word
Two-Way Intersection	2-WAY	
US Numbered Route	US	[Route Number]
Warning	WARN	
Wednesday	WED	
West	W	

* These Abbreviations shall only be used as part of the name of a roadway

Table 3: Unacceptable Abbreviations

Abbreviation	Intended Word	Common Misinterpretations
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong