

Display of Information on Variable Message Signs

Organisational Policy

Compliance to this policy is **mandatory**.

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Document sign off

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Date 10/4/12

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1 Policy Statement

The Department of Transport and Main Roads will limit the display of information on Variable Message Signs (VMS) to messages that are directly relevant to the driving task or likely to enhance the safety or performance of State-controlled roads. Permitted messages and their respective priority are as follows:

- 1 Emergency alerts, warnings of disasters, hazards or unexpected conditions – Warning messages provide advice to motorists about an impending or existing emergency event likely to or already effecting road conditions. These messages can also be used to assist in providing general safety, evacuation and other emergency related advice to the public. Warnings of hazards or unexpected conditions will alert motorists to immediate hazards, such as a crash, a lane blockage (due, for example to roadworks or a disabled vehicle or object on the road), an animal on the road, reduced visibility resulting from smoke or localised fog, slippery conditions resulting from oil/chemical spill or unexpected queues from non-recurrent congestion.
- 2 Child Abduction Alert messages (Amber Alert) – In the event of a child abduction or suspected child abduction, the Queensland Police Service (QPS) wish to rapidly inform the public of permissible details to assist with their investigation by the use of a pre-determined message.
- 3 Traffic management information - These messages are used to indicate the location and degree of localised recurrent congestion and travel times.
- 4 Travel information - These messages will provide advance advice of special events or roadworks which have an ability to affect traffic (generally including description and date/time of event, expectation of delay and/or suggestion to consider alternate routes). Generic descriptors of sporting events will be used when companies have purchased naming rights.
- 5 Filler messages - These messages (displayed when there is no requirement for a higher order message) are limited to road safety messages, community benefit messages and general transportation messages which are likely to enhance the safety or performance of the State-controlled road network or influence or inform the public in cases of potential or declared natural disasters. Community benefit messages can only be used where:
 - There is a significant community interest benefit (examples include drought conditions with critically low water storage levels and large numbers of visitors to the area, information relevant to the area about the transfer or red fire ants or extreme fire danger conditions); and
 - The message can be shown to be relevant to a significant proportion of the travelling public; and
 - No commercial or advertising benefit is given to any person or organisation (eg business names shall not appear on signs).

The following limitations apply to the use of filler messages:

- Filler messages must not be displayed during peak periods (peak is generally 6:00 – 9:00am and 3:00 – 6:00pm Monday – Friday but can vary depending on regional traffic conditions) as the VMS shall only be used for incident and traffic management purposes during peak period times.
- Filler messages must not be displayed when the traffic flows in the direction relevant to the VMS device are greater than 85% of the road capacity¹.

¹ Refer to TRUM Manual 2.9 Variable Message Signs Use and Operation

- Filler messages must be displayed for a minimum of 20% and **not** exceed more than 30% of the available time; road safety messages shall account for at least half of the filler messages being displayed.

Limiting the display of filler messages to not more than 30% of off peak times shall reduce the risk of frequent exposure to trivial information leading to VMS messages being ignored. At all other times, the VMS will be blank or in 'exercise' mode with displays warning of hazards, conditions and/or traffic management information.

2 Applicability

This policy applies to the display of information on VMS on State-controlled roads. This policy is to be read in conjunction with the accompanying Traffic and Road Use Manual (TRUM) Manual Part 2.9 Variable Message Signs Use and Operation Guideline.

3 Objectives

The main objectives of this policy are to:

- Maintain the credibility of information conveyed to motorists by VMS;
- Maintain the effectiveness of VMS; and
- Identify permitted types of messages and the relative priority of the messages.

4 Rationale

There are, essentially, two schools of thought on the display of messages on VMS:

- Always display a message on a sign regardless of whether or not a situation exists on the carriageway which requires a response/action by motorists (lane closed due to roadworks/incident, object on carriageway etc.).
- Only display a message when unusual conditions exist.

The primary argument in support of the first approach is the need to maintain motorists' confidence that the signs are functional and not faulty. A secondary argument is that motorists are conscious of the cost of the signs and expect to see some benefits from the investment in the asset.

Support for the second philosophy stems primarily from the human factor principles that motorists should not be given trivial information or information that they already know and that the communication system will be more effective by limiting the display of information to situations when some response by motorists is required. These human factor considerations are particularly important in those environments in which there are a lot of other competing demands for motorists' attention or where traffic volumes are high (greater than 85% of capacity).

The human brain absorbs a large amount of information whilst driving. In these situations the driver is required to filter out less relevant information. The risk is that frequent exposure to trivial information will ultimately result in the messages not being registered at all. In addition, unnecessary or unexpected distractions in high traffic volumes can have a significant impact on driver following behaviour. As the traffic flow approaches capacity, traffic conditions become very unstable and considerable fluctuations in both speed and concentration can occur in response to distractions. In less demanding driving situations, the converse argument has also been presented - where there is little other stimuli the messages will continue to register, irrespective of how trivial they might be.

This policy reflects a balance between both message composition philosophies, due to the vastly different road environments in which VMS are installed in Queensland. Supplementing traffic messages with filler messages that are directly relevant to the driving task, likely to enhance the safety or performance of State-controlled roads or influence or inform the public in cases of potential or declared natural disasters will maintain the effectiveness of the signs and ensure that there is a reasonable probability that motorists encounter a message.

5 Benefits

Real-time motorist information displays, particularly VMS, are playing increasingly important roles in attempts to improve highway safety, operation, and use of existing infrastructure. Highway VMS are traffic control devices used for warning, regulation, routing and managing of traffic, and are designed to affect the behavior of motorists (thus improve the flow of traffic) by providing real-time highway related information.

VMS devices are expensive and are intended for certain conditions and special uses. Their effectiveness depends on proper design (including conspicuity and legibility), placement, message design, display of the best message for the conditions and motorist understanding of the messages. Experience with the operation of VMS throughout Australia and the rest of the world is that motorists are more likely to be influenced by a VMS if the information displayed on the sign is directly relevant to the driving task.

Displaying messages that are too long for motorists to read at prevailing highway speeds or that are too complex or inappropriately designed, can adversely affect traffic flow and safety and the credibility of information displayed on VMS.

Since VMS are one of the visible components of TMR's ITS platform, failure to use VMS to adequately communicate information to motorists may lead to public dissatisfaction with ITS equipment.

6 Definitions

Term, abbreviations and acronyms	Definition
ITS TRG	Intelligent Transport Systems
TMR	Department of Transport and Main Roads
TRUM	Traffic and Road Use Manual
VMS	Variable Message Sign

7 Consultation

Road Safety Branch

TMR Regions (Darling Downs, Far North, Metropolitan, North Coast, Northern, South Coast)

Brisbane City Council

Gold Coast City Council

Brisbane Metropolitan Transport Management Centre

State-wide Traffic Management Centre

Intelligent Transport Systems Technical Reference Group

8 Review

Road and Corridor Use unit will evaluate this policy on a 12-monthly basis.

9 References

Transport and Main Roads, 2010, “*Variable Message Signs Use and Operation*”, TRUM Manual - Part 2.9.