



P34 NATIONAL OPERATING POLICY

**For
New Zealand Transport
Agency**

VARIABLE MESSAGE SIGNS

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Document Purpose The purpose of this document is to provide policy guidance for the operation of variable message signs (VMS). It should be read in conjunction with the closely related National Operating Procedures for New Zealand Transport Agency (NZTA) Variable Message Signs. NZTA has deployed VMS on the state highway network and local roads where there is a responsibility to provide traveller information.		
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1. Introduction

1.1. *Background*

Variable Message Signs (VMS) are now established as a strategically important, highly visible part of New Zealand's state highway network. Management of the network relies on a diverse array of processes and resources of which VMS are a crucial part.

NZTA recognises that international best practice must be applied when managing, operating and displaying messages, and that a high level of national consistency when presenting information to travellers, are essential to maintaining credibility. While regional differences dictate there will be some variations, NZTA's over-arching national philosophy with respect to the control, design and display of messages, are described in two documents which cover *policy* and *procedures*. In addition, for ease of reference, lower level site specific information is placed in a series of separate *regional schedules*.

1.2. *Scope*

This is a national document spanning every NZTA region. It covers the operation and control of messages on all NZTA motorway, urban & rural VMS. The document's coverage also extends to Mobile VMS.

This document **does not** cover CMS, LCS, and other non-VMS electronic signage.

1.3. *Relationship between Policy, Procedures & Schedules*

NZTA has established three levels of documentation relating to the operation of VMS. These comprise:

1. National Operating Policy.

This national document outlines the overall operating policy relating to the control of messages on NZTA's VMS. It covers motorway urban & rural locations, and Mobile VMS. It has important links to the National Operating Procedure described below.

2. National Operating Procedures.

This is also a national document and addresses the operating procedures governing NZTA's VMS. It contains a menu of standard messages, and outlines the best practice processes used to compose VMS messages. The National Operating Procedure sits below and is consistent with, the National Operating Policy.

3. Regional Schedules.

These regional documents contain contact details of authorised consultants and contractors, approved message wording for commonly occurring events, frequently used local place names, and identify linked VMS for each common incident location.

They also include the type of detailed information required for maintenance, or asset management purposes.

The collation and updating of these schedules is the responsibility of each region.

2. Approved Message Applications

Effectively managed VMS messages have a high impact with travellers. Conversely it has been proven the impact of all messages diminish significantly when some messages are displayed to excess, are incorrect, or are irrelevant.

The primary messages for high frequency or long duration conditions should be delivered through some other mechanism such as static signs. In this way the effectiveness of VMS messages is not compromised through over-exposure.

Approved applications for VMS messages are discussed in sections 2.1 to 2.8.

2.1. Incident Management, Diversions, Delays, Closures

To advise travellers of unusual conditions such as accidents, road maintenance, diversions, delays, and road closures.

2.2. Adverse Road or Driving Conditions

To advise travellers of unusual potentially hazardous conditions affecting the road surface such as water, snow, oil spills; and in addition potentially hazardous driving conditions such as high winds or poor visibility.

Extreme wind warnings would normally only be displayed several times per year.

Where the presence of snow or ice is unusual for the time of year or geographic location, a warning "Winter Driving Conditions" should be displayed. Examples may include an early cold snap in February resulting in icy roads which rarely experience ice in summer, or winter ice in areas where ice is a rare event.

However where ice is a regular occurrence, the primary method of displaying messages warning of ice should be delivered through TW-4 (Slippery Surface) or TW-4.1 (Ice/Grit) reflective signage.

Rationale:

The issues surrounding ice messages are complex!

Arguments in favour of displaying ice messages on VMS include:

- NZTA fulfils real / perceived obligations to inform travellers of ice hazards.

Arguments against displaying frequent ice messages include:

- Creating an expectation that the road is ice free when no warning is displayed.
- Potential liability should an accident occur when no warning is displayed.
- The VMS may be some distance from potential ice hazards.
- Reflecting the constantly changing risk level when VMS are promoted as providing real time information.
- Travellers becoming over-exposed to the ice message.
- The historical position of the TNZ Winter Maintenance group was the primary management of ice should be through static signage.

2.3. *Prior Notice of Changes Affecting Travellers*

Messages providing advanced notice of changes affecting travellers such as road works, planned diversions, or interruptions to traffic flow.

Prior notice information shall be expressed in days of the week, not calendar dates. Messages with days of the week should not be displayed more than six days in advance.

Rationale:

Research shows travellers recall days of the week better than calendar dates. It follows then that messages with days of the week should not be displayed more than six days in advance to avoid confusion.

2.4. *Major Shows Concerts Sporting Events Affecting Travellers*

Events such as shows, concerts, or sporting events including cycle races, marathon on the Auckland Harbour Bridge, or the Coast to Coast race, may significantly disrupt traffic or require motorists to be aware of vulnerable travellers. In these situations VMS messages should be used to provide advanced notice (refer to Section 2.3 *Prior Notice of Changes Affecting Travellers*), or assist with traffic management during the event.

Messages should not advertise the event. Generic terminology should be used rather than including the name of a sponsor, or e.g. the name of a rock band.

2.5. *Civil Defence or Disaster Events*

If a civil defence emergency is formally declared the CD Controller has wide ranging powers, and NZTA will be represented in the Civil Defence command centre.

In such an event the VMS control centre will post any messages requested by the CD Controller, noting these requests must always be channelled through NZTA.

2.6. *Testing the Operation of VMS*

Test messages may need to be displayed when a VMS is undergoing site acceptance tests (SATs) or during maintenance. Only approved test messages shall be displayed, and only for a short duration whilst a service technician is onsite.

2.7. **Re-Opening Roads**

When a temporarily closed road is re-opened, rather than immediately blanking the sign, a “Road Now Open” message shall be displayed for 15 minutes, or the time that it takes to drive from a preceding VMS displaying road closed, whichever is longer, so travellers are actively advised of the changed condition.

The sign must be blanked when the display period has elapsed.

Rationale:

Travellers may stop and wait at the VMS for the road to re-open.

Travellers may have just passed a preceding VMS advising the road is closed.

It is beneficial to actively, rather than passively, inform travellers of this change in status.

2.8 Road Safety Campaign Messages

When VMS are used to support road safety campaigns, the instant ability to meet NZTA operational requirements must always remain the first priority.

VMS shall not be used to display advertising messages of any sort including road safety campaigns, except as follows:

- Road safety messages that have been specifically proposed and/or requested by the Police National Road Policing Manager or the NZTA Regional State Highway Manager, and
- That are part of a nation wide campaign endorsed by the NZTA HNO Traffic and Safety Manager, and
- That are displayed only during a pre-defined period such as Christmas, Easter, Queen's Birthday, etc, and

Even if these conditions are met, then the messages may be over-ridden at any time without notice by traffic safety/information messages in accordance with the standard VMS operating principles.

VMS in sensitive locations, such as the section of SH94 Milford Road running through a World Heritage Park, shall be excluded from displaying Road Safety Campaign messages.

As a general guideline, campaign messages should only be posted at times of the year when VMS utilisation in the region is low. For example, for regions that are significantly affected by adverse winter conditions, the most appropriate time to display campaign messages is over summer

Rationale:

It is important to ensure NZTA's primary objectives for installing VMS are met. Extensive use of VMS for road safety campaigns may assist the safety campaign objectives but negatively impact on NZTA's primary VMS objectives. Refer to the comments under the Section 4 heading which address diminished road user impact caused by over-exposure to messages.

3. Responding to Emergency Services Requests

3.1. *CIMS Protocol*

There is a national Coordinated Incident Management System (CIMS) Protocol between NZTA, and the emergency services comprising: Police, Fire and Ambulance Services. This protocol sets out the agreed terms under which road incidents and crashes shall be managed.

Also refer to: *Section 6 Verification of Information.*

3.2. *Balancing Priorities*

The VMS operator must balance reasonable requests from Police or other verified emergency services sources with any situation that may apply elsewhere. If a conflict exists the VMS operator must determine which of the situations should take priority.

The VMS operator may receive requests for non-standard messages from the emergency services. Where ever possible, standard messages should be selected to meet these requests.

4. Blanking of Signs

4.1. *Active Blanking When No Message*

The VMS shall remain blank when there is no approved message to display.

Rationale:

Blanking the sign when there is no message (as opposed to routinely displaying "Road Open") increases the impact when there is a message.

There are also a number of other benefits including making the sign less obtrusive, reducing light pollution, and reducing any annoying effects on neighbours.

5. Applications for Which Messages Are Not Approved

VMS are not to be used to display messages in the following situations.

5.1. Advertising

Advertising is not permitted.

5.2. Public Announcements Unrelated to Road Information

Public announcements that do not provide relevant road information, or otherwise comply with an approved message application, are not permitted.

5.3. Missing Persons Unrelated to Road Information

The posting of a missing person message is not permitted.

The only exception is if the missing person, or those searching for them, pose a significant risk to the safety of travellers.

Rationale:

Some US states allow the routine posting of missing person messages, while other states do not.

NZTA's position is that more critical road safety messages will have diminished impact if over-exposure occurs.

5.4. High Frequency Winter Ice Conditions

Also refer to: *Section 2.2 Adverse Road or Driving conditions*

VMS should not be used continuously to advise of ice hazards for the reasons outlined in Section 2.2. However VMS should be used as appropriate to manage closures, accidents, delays or diversions that are caused as a result of ice.

6. Verification of Information

6.1. *Verified Sources*

Information about incidents may be received from a number of sources including the Network Maintenance Contractor, NZTA staff, Network Consultant, Police, and from CCTV coverage of the highway in question. Information from these sources should be treated as a “Verified Report” unless there is reasonably strong evidence to the contrary.

6.2. *Unverified Sources*

Information from the public and other sources of unverified information will often be inaccurate about locations and road conditions. To preserve the credibility of the VMS system and of NZTA, it is important to corroborate information from unverified sources before displaying a message.

7. Identification of State Highway Number

It is critical that the over riding majority of travellers comprehend which highway the message relates to. This may be intuitively understood, or the SH may need to be formally identified by its number. In some instances it is also critical to identify the location of an adverse condition (e.g. on SH73 this will usually be Porters Pass, Arthur's Pass or the Otira Gorge). Whether the identity of the SH can be understood intuitively depends on whether the network ahead is mosaic or linear in nature. The approach for mosaic and linear is covered in the following sections. It has a significant bearing on whether the highway, or locations on the highway, should be identified given the constraints over number of characters available to create a message.

The requirement to include the SH number is to be documented in the Regional Schedules.

7.1. *Mosaic versus Linear Networks*

A large part of the central North Island state highway network can be described as mosaic in nature. That is there are many interconnections between the various state highways. In this situation travellers need to be told which of the routes ahead relate to the message.

On the other hand practically all of the South Island, and parts of the North Island state highway network, can be described as linear in nature. That is the main routes run for very long distances with only a few intersections with minor roads. In this situation travellers are able to intuitively understand that any messages relate to the state highway they are travelling on.

7.2. *Motorway*

On the Auckland motorway, identification of the state highway number is often superfluous, and the SH number is displayed only when necessary. The focus is on identifying locations by naming e.g. the exit ramps.

7.3. *SH Numbers on Mosaic Sections*

Where the state highway ahead of the VMS is of a mosaic nature the state highway number (e.g. SH1) must normally form part of the message. A possible exception is where use of a name such as "Desert Road" renders the inclusion of the SH1 superfluous. A reasonable criterion is: Whether the majority of tourists will identify the correct road using commonly available touring maps.

7.4. *SH Numbers on Linear Sections*

Where the state highway ahead of the VMS is of a linear nature, Inclusion of e.g. SH1 is usually unnecessary.

8. Standard and Non-Standard Messages

8.1. *Standard Messages*

NZTA National Office shall be responsible for the process to approve the wording and context of standard messages. These shall be periodically reviewed and approved standard messages recorded in a national register.

Wherever possible, approved standard messages will be used on all NZTA VMS.

A register of standard messages is provided in the **VMS Operating Procedures Manual**.

8.2. *Non-Standard Messages*

The rules around the compilation of non-standard and free text messages are provided in the **VMS Operating Procedures Manual**.

8.3. *Record of All Messages*

A record shall be kept of all VMS messages; including the dates and times they were posted and blanked. (This is to provide a record in the event that NZTA has to defend a case involving potential liability).

9. Boundaries of Influence

The operator must determine how far “upstream” from an incident the *boundary of influence* of a VMS should extend, and at what point does a message lose relevance for travellers.

It is not unusual for Rural VMS to be located more than an hours driving time from an alternative route intersection, and even further from an incident location. This contrasts with VMS in urban situations which generally have considerably shorter boundaries of influence.

At this stage no policy has been established, relying instead on operator judgement to weigh up a number of factors including:

- The nature of the condition
- The likely duration of the condition
- Travel time between the VMS and the incident.
- The positions of alternative route intersections
- The locations of any other VMS nearer to the incident
- The information requirements of linehaul operators

10. Mobile VMS

Mobile VMS are frequently deployed to provide travellers localised information. Every reasonable effort shall be made to ensure that messages posted on the mobile VMS are compatible with information provided elsewhere on the network.

Please refer to the section in the NZTA National Operating Procedures dealing with Mobile VMS.