



**APPLYING  
TECHNOLOGY IN  
TRANSPORTATION**

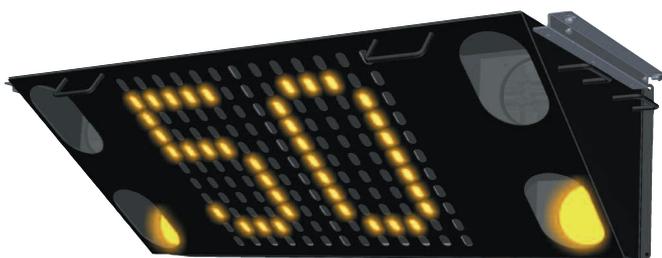
# TUNNELSIGNS

INFORMATION AND GUIDANCE SYSTEMS



Tunnels are an essential part of land transport management and strategic road network design. Whether intended to reduce severe traffic congestion, to avoid environmentally sensitive or heritage areas, or to bypass a geographical feature, a well-designed and managed tunnel will bring significant benefits in terms of safety and reduced journey times.

Variable Message Signs Limited has considerable experience in developing and providing specialist signs for tunnel duties, built on the back of over 25 year's experience of developing information systems for the UK highways network.



## SIGNS FOR TUNNEL APPLICATIONS

The first tunnel road sign you will come across is often a portal sign, a two line text-based sign intended for the delivery of general safety and guidance information. Within the tunnel itself, a range of signs are utilised to manage lane control, speed limits, and general tunnel messages.

Lane control signs will be found above each traffic lane at, or on, the approach to the entrance to a tunnel and these will be repeated at regular intervals inside the tunnel.

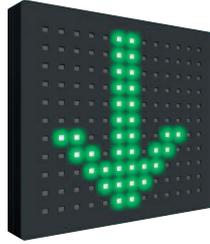
Variable message signs in the form of speed limit repeater indicators are used where the speed limit can vary in a tunnel, allowing the tunnel master to control the speed limit according to traffic conditions and road safety considerations.

VMS Limited also offer bespoke solutions to specific problems, such as low profile signs for reduced headroom applications, and dual-faced signs for use where tunnels must accommodate contra-flow traffic.

## SIGNS FOR TUNNELS

### Lane Control Signs

Lane Control signs are LED (light emitting diode) matrix signs that display either a downward pointing green arrow or a red cross. Available in single or dual-faced versions, the display matrix is 13 pixels high x 11 pixels wide with a 50mm pixel pitch in a sign 750mm x 750mm x 200mm. Optical performance meets TR2516B and BS EN 12966.



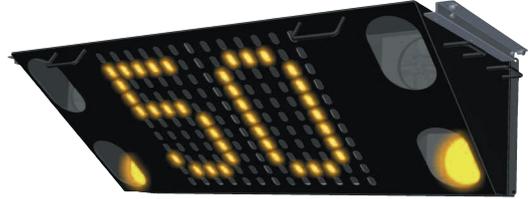
### Speed Limit Repeater Signs

These signs are installed along both sides of a tunnel bore. They display a speed limit value inside a red roundel, or can display the national speed limit symbol. To accommodate contra-flow traffic the sign has a retro-reflective speed limit symbol on the rear of the sign enclosure. Optical performance meets TR2516B and BS EN 12966.



### Tunnel Message Sign

VMS Ltd manufacture a range of 2x12 discrete character LED signs for general Tunnel Message Sign applications. Character sizes of 100mm, 160mm, and 240mm can be supplied with or without flashing amber lanterns. Signs can be mounted back-to-back for contra-flow operations.



### Bespoke Design

Bespoke designs can be produced to meet the requirements of a specific problem. For example, a low profile message sign has been developed for use in tunnels where headroom is restricted. This sign has a tri-colour matrix display 13 pixels wide by 11 pixels high, and is also fitted with dual-colour lanterns.



### Similar Applications

Variable Message Signs Limited has also supplied systems for Bridge Management and Ferry applications, please ask for details.

## TUNNEL PROJECTS

London Heathrow	2005 - present
Johnstones Hill (New Zealand)	2008
Hatfield	2009
Rotherhithe	2009
Tyne Tunnel	2009
Hindhead	2010
Blackwall	2010
TT2 (Tyne Tunnel 2)	present

## FERRIES

Strangford Lough (Northern Ireland)	2005
Fishguard (Wales), Wexford, (Ireland)	2006 - 07
Foyle Ferry (Northern Ireland)	2007 - 08

## BRIDGE PROJECTS

Forth Bridge (Scotland)	1988 - 93
Second Severn Crossing	1990 - 92
Tay Road Bridge (Scotland)	1998 - present
Humber Bridge	2000
Queen Elizabeth II, Dartford	2001 - present
Sydney Harbour (Australia)	2002
Orwell Bridge	2004
Foyle Bridge (Northern Ireland)	2005 - present
Cleddau Bridge (Wales)	2006 - 07
Auckland Harbour (New Zealand)	2007



Highways Agency Type Approved



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