Technical Note 113

Diversion route signage

April 2015
1 Purpose

This Technical Note outlines the recommended application of signing on approved diversion routes. Diversion routes may be temporary signs used to divert traffic around traffic incident sites (for example, crash site) or permanent signs that guide specific vehicle types along an alternative route (for example, excess mass, oversized vehicles).

To promote standard practices on Queensland’s state-controlled road network, the signs detailed in this Technical Note are exclusively reserved for diversion route signing only. The intention is for these signs to remain unique, thus they are not to be used (or modified for use) for any other application without prior approval from the Traffic Engineering and Data Unit.

The investigation and selection of roads that form a diversion route, as well as consultation and sign-off by relevant stakeholders, must be finalised before consideration is given to designing a suite of signs using this Technical Note.

2 Background

Diversion route signage was initially conceived as a traffic incident management tool. Traffic incident management is a co-ordinated approach to reducing the negative effects of traffic incidents. This type of management focuses on quick detection, response and clearance of traffic incidents/hazards. Traffic incident management programs also alert drivers about traffic incidents and seek to maximise traffic flow through and around the incident site.

The impact of not having incident management programs in place is significant and may include: threats to public safety, personal injuries, delays in emergency response to incidents, time loss, fuel consumption, delays in critical goods reaching their destinations, increased vehicle emission and other economic impacts.

The Queensland Traffic Incident Management Strategy 2003 is a co-ordinated approach by the Department of Transport and Main Roads and Queensland Police Service to provide a framework in which to implement traffic management measures. Part 7 of the strategy identifies the responsibility of Transport and Main Roads and local government to manage traffic in the outer cordon of incident sites. Part 8 of the strategy identifies the establishment of traffic diversion routes.

The approved application of diversion route signing has been broadened from its initial use around traffic incident sites only. As is the case with traffic incident management, it is expected the unique style of diversion route signing will be equally effective providing alternative route guidance for the heavy vehicle industry (for example, excess mass, oversized vehicles).

3 Sign types

There are two series of signs recommended for signing diversion routes, ‘Series 1’ and ‘Series 2’.

Series 1 diversion route signs are designed for high traffic volume/high speed roads, such as motorways or key arterial roads. On these road types, there can be many challenges and/or distractions facing motorists, such as navigating complex interchanges (and deciphering associated guide signing), roadside advertising devices, roadside development or the sheer volume of traffic on the road ahead. Series 1 diversion route signs are large in size, making them highly visible and easily recognised and deciphered by motorists in what is expected to be a cluttered visual environment. It is anticipated Series 1 signage would be used in highly-developed areas, such as south-east Queensland.
Series 2 diversion route signs are typically smaller signs designed for lower traffic volume roads where the layout of the network is not complex and the existing level of guide signing is not excessive. As with Series 1 signs, Series 2 diversion route signs are high visibility devices as a result of their unique design. Given Series 2 signs are designed for an uncomplicated road network, the signed diversion route message is typically abbreviated to ‘DR’. This results in a smaller sign face and significant cost savings as compared to Series 1 signs.

While the following details describe the different and preferred application of Series 1 and Series 2 diversion route signs, it is likely unique site conditions will necessitate the use of a particular Series 2 sign in a Series 1 signage layout and vice versa. The Traffic Engineering and Data can provide further guidance on the design of a suite of signs for diversion routes.

3.1 **Series 1 diversion route signs**

There are three types of Series 1 signs used to guide motorists through an approved diversion route, those being:

- advance diversion warning sign
- diversion direction sign, and
- end diversion sign.

The performance of static sign faces can be diminished over a period of time as motorists become complacent with the information signed. To enhance the conspicuity of diversion route signing, it is recommended all sign faces should be hinged and opened only while the related diversion route is in use. While the initial set up cost will be higher, there should be instant traffic efficiency benefits with the high visibility diversion routes signs capturing motorists’ attention. There are also longer term maintenance benefits with hinged sign faces given their limited exposure to atmospheric conditions that can deteriorate the sign face material.

3.1.1 **Advance diversion warning sign**

Advance diversion warning signs are installed on the state-controlled road network on approach to the exit point to the diversion route. Their function is to give advance warning of the changed traffic condition ahead and provide adequate time for motorists to make driving decisions.

The advance diversion warning sign has been designed with optional wig-wag lighting. It is expected the inclusion of wig-wag lighting will only be required in exceptional circumstances, such as high speed/high volume multi-lane motorways or locations where unique site conditions warrant additional driver attention.
3.1.2 Diversion direction sign

Diversion direction signs are installed to guide motorists along the road network of the diversion route. As is the practice with standard guide signing, the placement of diversion direction signs at key intersections or decision points is likely to provide greater traffic safety and efficiency benefits. Given motorists driving the diversion route are likely to be unfamiliar with the road network, it is also important to consider using these signs as reassurance devices at suitable mid-block locations. The use of reassurance signing is highly recommended on long diversion routes in rural areas where motorists may become disorientated or concerned a key intersection has been missed.

There are six standard designs for diversion direction signs as illustrated below. It is expected the range of standard designs should accommodate the configuration of all intersection types. The use of these signs at and/or in advance of interchanges/intersections along the diversion route is dependent upon the complexity of the subject road network. The level of existing standard guide signing should provide an indication as to the need to provide diversion direction signs at or in advance of interchanges/intersections.

3.1.3 End diversion sign

End diversion route signage must be installed at the end of a signed diversion route. Their purpose is to inform motorists they have completed the diversion and are returning to unrestricted route selection. Ideally, end diversion route signage should be located within sight of the major road network and,
where applicable, near existing guide signing that provides motorists with further route selection choices.

3.2 Series 2 diversion route signs

There are three types of Series 2 signs used to guide motorists through an approved diversion route, these being:

- advance diversion warning sign
- diversion direction sign, and
- end diversion sign.

3.2.1 Advance diversion warning sign

Advance diversion warning signs are installed on the state-controlled road network on approach to the exit point to the diversion route. Their function is to give advance warning of the changed traffic condition ahead and provide adequate time for motorists to make driving decisions.

The advance diversion warning sign has been designed with optional wig-wag lighting. It is expected the inclusion of wig-wag lighting will only be required in exceptional circumstances where unique site conditions warrant additional driver attention. Given the unique design and specific information contained on advance diversion warning signs, consideration should be given to using a hinged sign face allowing the device to open only while the diversion route is operational.
3.2.2 Diversion direction sign

Diversion direction signs are installed to guide motorists along the road network of the diversion route. As is the practice with standard guide signing, the placement of diversion direction signs at key intersections or decision points is likely to provide greater traffic safety and efficiency benefits. Given motorists driving the diversion route are likely to be unfamiliar with the road network, it is also important to consider using these signs as reassurance devices at suitable mid-block locations. The use of reassurance signing is highly recommended on long diversion routes in rural areas where motorists may become disorientated or concerned a key intersection has been missed.

There are many variations of Series 2 diversion direction signs given the characteristics of each diversion route is unique. These signs may be erected on independent sign posts or incorporated into existing guide signing. The method of signing diversion routes should be based on an outcome that provides the clearest level of signing. For example, in some instances incorporating diversion route information onto existing guide signs maybe complimentary and reinforce the correct direction of travel. In other situations, the additional information could clutter and complicate the existing guide signing. In the latter scenario, diversion route signs should be erected on independent posts.

Where diversion routes are temporary (that is, around traffic incident sites) and it is practical to drive the route prior to re-directing traffic, consideration should be given to installing hinged sign faces. While the initial set-up will be higher, there are traffic efficiency benefits from minimising the amount of information continually exposed to motorists. There are also longer term maintenance benefits with hinged sign faces given their limited exposure to atmospheric conditions that can deteriorate the sign face material.

Prior to commencing with designing a suite of diversion route signs, practitioners should liaise with the Traffic Engineering and Data Unit to obtain the latest copy of approved TC sign designs.

3.2.3 End diversion sign

End diversion route signage must be installed at the end of a signed diversion route. Their purpose is to inform motorists they have completed the diversion and are returning to unrestricted route selection. Ideally, end diversion route signage should be located within sight of the major road network and, where applicable, near existing guide signing that provides motorists with further route selection choices.

The choice of end diversion route signing is based on the complexity of the subject road network. It is recommended the full wording version (TCXXXX) is used at more complex locations to ensure it is clearly visible to approaching motorists. The use of a hinged sign face is also recommended for the larger sign to avoid the device becoming an unnecessary distraction while the diversion route is not in operation.
4 Numbering diversion routes

Where there are multiple diversion routes located close together or routes that share a common road, there may be a need to number the diversion routes.

A suite of TC signs have been approved to cater for numbered diversion routes. Prior to commencing with designing a suite of diversion route signs, practitioners should liaise with the Traffic Engineering and Data Unit to obtain the latest copy of approved TC sign designs.

5 Heavy vehicle management

Diversion route signing may be used to manage heavy vehicle access (for example, excess mass, oversized vehicles). While the method of signing the route is outlined in Section 3 above, additional TC signs have been approved to detail the specifics of the vehicles being diverted.

Prior to commencing with designing a suite of diversion route signs for heavy vehicles, practitioners should liaise with the Traffic Engineering and Data Unit to obtain the latest copy of approved TC sign designs.
6 Positioning of signs

Part 1 of the *Manual of Uniform Traffic Control Devices 2003* (MUTCD) outlines general criteria for the lateral, longitudinal and mounting heights of road traffic signs. The signs referred to in this Technical Note must be installed in accordance with the criteria outlined in the MUTCD.

Road traffic signs and structures are potentially hazardous to occupants of errant vehicles. To limit the installation of additional roadside hazards, it is recommended the diversion direction signs are installed on existing structures with existing guide signs (only where this does not contradict Section 3.2.2 above). The attached maps illustrate concept signing layouts.

7 Approval to erect, change or remove signs

7.1 Traffic incident management

Proposed diversion routes and the associated signing should be conceived and endorsed by the local Transport and Main Roads Incident Management Working Group (IMWG). Where a Transport and Main Roads region has not established an IMWG, the department shall, as a minimum, consult with Queensland Police Service’s local Regional Traffic Coordinator and the local government authority. Local government consultation is particularly important where a proposed diversion is likely to impact on traffic and the pavement condition of the local road network. Transport and Main Roads shall seek written approval from the Chief Executive Officer regarding the placement of diversion route signing on the local road network.

While local government must be consulted about diversion route signing on their road network, the Transport and Main Roads Regional Director shall have final authority for approving the installation of diversion route signing on and from the state-controlled road network. To ensure consistency for motorists, Transport and Main Roads regions should strongly promote and encourage the adoption of this technical note by local government.

7.2 Heavy vehicle management

Where a proposed diversion route from the state-controlled road network uses the local road network, Transport and Main Roads shall liaise and seek written approval from the relevant local authority. Local government consultation is particularly important where a proposed diversion is likely to impact on traffic and the pavement condition of the local road network.

While local government must be consulted about diversion route signing on their road network, the Transport and Main Roads Regional Director shall have final authority for approving the installation of diversion route signing on and from the state-controlled road network. To ensure consistency for
motorists, Transport and Main Roads regions should strongly promote and encourage the adoption of this Technical Note by local government.

8 Costs to erect, change or remove signs

All costs associated with the manufacturing and installation of diversion route signing on the state-controlled road network shall be funded by the local Transport and Main Roads regional office. Where a diversion from the state-controlled road network uses the local government road network, Transport and Main Roads shall fund all associated signing works.

The above mentioned arrangements also apply to any subsequent changes, relocation or removal of signs.

Where local government develop diversion routes on their road network that do not use state-controlled roads, the local authority is responsible for all associated signage costs.
CONCEPT SIGNING LAYOUT 1
CONCEPT SIGNING LAYOUT 2
CONCEPT SIGNING LAYOUT 3 - SERIES 2
DIVERSION ROUTE SIGNING - ROAD CONDITIONS / VEHICLE RESTRICTIONS
CONCEPT SIGNING LAYOUT 4 - SERIES 2
DIVERSION ROUTE SIGNING - HEAVY VEHICLE MANAGEMENT