

Concealed Driveways and Intersections





TRAFFIC MANAGEMENT Operational Instructions

Concealed Driveways - 2.2

AMENDMENT RECORD

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1. Scope

These guidelines provide guidance to address sight restriction problems at intersections, junctions and accesses associated with private property arterial roads.

2. Definition

A **Concealed Driveway** is when a vehicle entering the road network from a driveway cannot be seen by a vehicle approaching the driveway for a distance equal to or less than the stopping sight distance.

2.2

Where the stopping sight distance is less than the required distance, it is recommended that the following guidelines are considered for road safety purposes.

3. Responsibility

In a strictly legal sense the safety associated with accessing the road from private property is seen as a matter for Local Government and the driver of the vehicle entering from a public road falls under the Road Traffic Act. However, it is also clear that the road authority, as the manager of the road network has a responsibility to all road users for the safety of the network.

4. Remedial Action

To resolve the sight restriction problems the following should be considered:

- Access relocation
- Turn restrictions
- Road realignment
- Alteration and/or relocation of property fencing
- Vegetation trimming or removal
- Site benching
- Shoulder acceleration and/or deceleration areas
- Convex mirror installation (See section 7)

It should be noted that it is reasonable to assume that drivers will have an expectation of encountering concealed accesses in low speed geometrically restricted road environments such as urban and hilly areas. However, as the environment becomes more open and speeds increase the potential for serious accidents may increase.

In these cases it is even more important that an effort be made to remedy the sight restriction problems. Wherever possible all reasonable efforts to reduce the hazard should be undertaken, subject to costs being tolerable to stakeholders, prior to resorting to traffic signs.

5. Traffic Signs

Signs on the main road approaches warning of concealed driveways should only be considered as a last resort, as they are not likely to offer any significant safety improvement. Signs directed to the main road traffic can in some instances provide some property owners with a false sense of security by giving the impression that their responsibility to enter the road safely has in some way been reduced. Allied to this, the infrequency of encountering a vehicle entering from a particular private access may also render signing treatments ineffective. The following signs are to be used and the supplementary distance plates W8-17-1 and W8-17-2 may be used if considered appropriate.

2.2

Distances shown on the W8-17-1 sign shall be shown in whole kms

Distances shown on the W8-17-2 shall be:

- Up to 500 m – to nearest 100 m
- Between 500 m and 1 km – to the nearest half a km



TES 16902



W8-17-2



TES 16903



W8-17-1

6. Costs

The Department shall be responsible for the costs associated with any improvements necessary within the carriageway. However, other remedial measures such as access relocation, vegetation clearing, site benching, convex mirror installation etc. are more likely to be the responsibility of the property owner or of the Local Government Authority.

7. Convex Traffic Mirrors

The following information provides practitioners with the fundamental considerations necessary to assist in determining whether convex mirrors are appropriate. Specific issues covered include, the effect that mirrors have on driver behaviour, the environment in which mirrors are most suited, the type of mirror preferred and important considerations relating to installation and maintenance.

Convex mirrors should only be considered if all other attempts to improve sight distance fail. The Department has some reservations about such devices that should be clearly understood by the local Council and the property owner. Mirrors shall not be installed within the carriageway, including shoulders, islands and medians.

2.2

7.1 Mirror Properties

To provide an image sufficient to see large areas, it is necessary to use mirrors with a convex surface. However the convex shape of the mirror results in the image, speed and distance of the object being distorted. The degree of distortion depends on the radius of the curvature and the size of the convex mirror. The larger the radius of curvature the lesser the distortion and vice versa.

In addition to distortion effects, the image of a vehicle in a convex mirror appears to be on the wrong side of the road. This is due to the lateral inversion of the image created by the mirror. This lateral inversion or mirror image effect can result in road users misinterpreting the images. This misinterpretation is seen as a serious limitation. However, the purpose of a convex mirror is simply to indicate to the road user, the presence or absence of a moving or stationary vehicle and/or pedestrian.

Dark blue, black and other dark colours are difficult to detect in these mirrors in the early morning or late afternoon as these colours appear to be absorbed by the road surface colour.

7.2 Road Safety Assessment

The particular circumstances of the proposed installation of a convex mirror needs to be assessed from a road safety perspective using documented road safety audit procedures before a decision is made to install a convex mirror on a public road. Considering the problems inherent in the design and in the use of convex mirrors, the road safety assessment must show that there are safety benefits in installing the mirror over installing other traffic engineering measures.

The road safety assessment and consequent decision to install the convex mirror must be documented.

7.3 Limitations

Convex mirrors shall not be installed:

- on public roads where alternative engineering measures have been used as stated in section 4.
- within the carriageway, including shoulders, islands and medians
- to enhance pedestrian crossing movements. Other solutions should be considered, such as relocation of the crossing point
- on roads with an 85th percentile greater than 60km/h.

2.2

Convex mirrors are not considered traffic control devices and so do not require approval under the conditions of the Road Traffic Act. However, the road authority may be legally liable for a negligence claim where a person has been injured through reliance on a convex mirror installed on a road under its care. To minimise the exposure to such a claim, before installing a convex mirror, the road authority needs to observe the following three step process:

- use road safety audit procedures to assess the road safety benefits relative to the risk of crashes in installing a convex mirror at a particular location,
- make a decision based on the assessment of the road safety benefits and the risk of crashes arising from the installation, and
- take all necessary steps to ensure safe and proper installation, operation and use of the mirror.

7.4 Installation and Maintenance

The convex mirror should be installed at a location that provides the best view of the road and the oncoming vehicles concerned. Mirrors should be positioned such that the driver of the vehicle entering (ie. the one required to give-way) can see the opposing vehicle in approximately the centre of the mirror.

The DISTORTED IMAGE (G9-SA112) sign, (refer to section 6.7), must be attached below the mirror. A red/orange fluorescent coloured protective outer band (target board) will assist in improving the conspicuity of the mirror, particularly for road users who are not regular visitors to the area.

Mirrors shall not be installed within the carriageway, including traffic islands or medians. When installed within the road reserve, care should be taken to ensure that its position does not constitute a road traffic or pedestrian hazard, or create a problem for general road maintenance.

Because the mirrors are likely to be installed between the edge of the kerb/carriageway/shoulder and the road reserve boundary, advice (and approval if necessary) should be sought from the Local Government authority by the property owner (in incorporated areas) before installation.

7.5 Funding

Local Government is responsible for the cost of mirrors installed on local government roads. Property owners are responsible for the cost of mirrors used for entering the road reserve from concealed property access.

7.6 Signs

A DISTORTED IMAGE (G9-SA112) sign shall be installed below the mirror to warn road users.

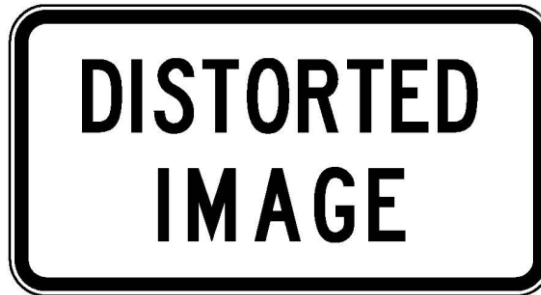
2.2

Figure 1: Distorted Image Sign (G9-SA112)

8. Public Road Access

Where there is restricted sight distance from a public road on to a DPTI maintained road ie. at intersections, junctions, or on single lane roads with opposing traffic flows, a convex mirror maybe installed in the road reserve after a road safety assessment shows that there are safety benefits in installing the mirror. Council must obtain approval from the CoH for DPTI maintained roads

Council will fund the cost of the convex mirror and installation and maintenance where it is installed within the road reserve maintained by DPTI.

9. References

Austrroads (2016) *Guide to the Road Design – Part 3 Geometric Design*