Visibility

2.15 For safety, drivers both on the major road and on the minor road or direct access shall be able to see any potential hazard in time to slow down or stop comfortably before reaching it. It is necessary therefore to consider the driver's line of vision in both the vertical and horizontal planes and the stopping sight distance for the vehicle at the relevant design speed. It is also essential that other road users can equally see oncoming vehicles, particularly where vehicles cross the footway in front of pedestrians at the same level and the crossing may not be so obvious. The Design Organisation shall comply with these requirements.

2.16 It is also important that any driver wishing to turn right across the opposing traffic stream into the access shall be able to see oncoming vehicles for the Desirable Minimum Stopping Distance as set out in **TD9 (DMRB 6.1.1)** for the design speed of the road. **TD9** also sets down the visibility requirements on approaching a junction and the same values shall be taken for drivers approaching where vehicles are turning right into a direct access **(see also 2.24)**.

2.17 Visibility splays shall be provided to enable emerging drivers using the direct access to have adequate visibility in each direction to see oncoming traffic in sufficient time to make their manoeuvre safely without influencing the major road traffic speed. Drivers of vehicles on the major road shall also have forward visibility equivalent to the desirable minimum stopping sight distance to be aware of the presence of the access.

2.18 Dangerous conditions arise if vehicles obstruct visibility by parking within visibility splays. Where necessary, parking and access shall be controlled to prevent this. The Design Organisation shall ensure that the positioning of lay-bys, bus stops, traffic signs and other street furniture does not interfere with the drivers' visibility requirements and that the obstructive effect for all road users is minimised.

2.19 The visibility standards given below are expressed in terms of "X" and "Y" distances. **Figure 2.1** below illustrates these distances in a typical access.

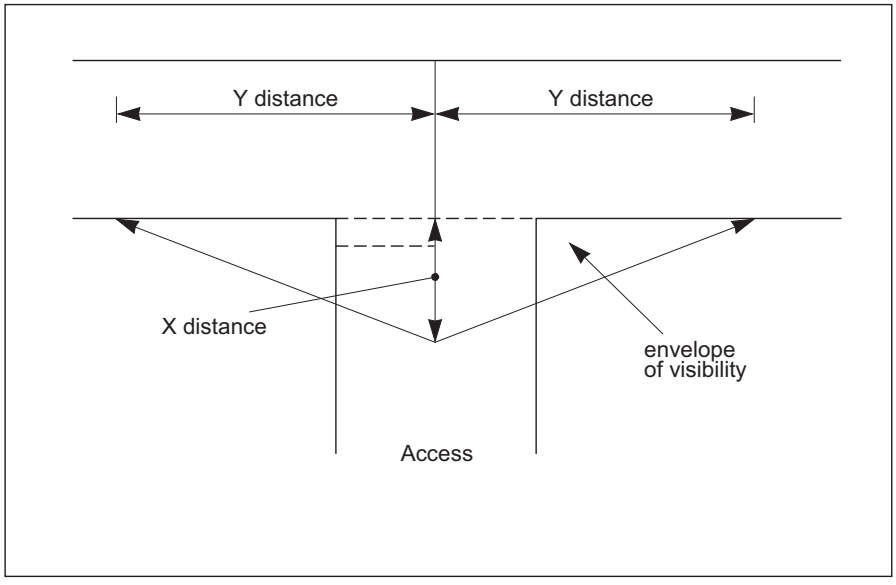

Figure 2/1 : Definition of “X” and “Y” Distances

2.20 The "X" distance is referred to as the 'set-back' distance and shall be measured from the continuation of the nearer edge of the major road running lane (not from the continuation of the main road 1m hardstrip if this is present) along the centre line of the direct access. The "Y" distance shall be measured from a point on the nearer edge of the main road running lane to its intersection with the centre line of the access.

2.21 Normally, an "X" distance of 4.5m shall be provided for a direct access where use in the design year is forecast not to exceed 500 AADT. The choice of set back distance is related to the forecast traffic using the access. For lightly used accesses, for example those serving a single dwelling or a small cul-de-sac of a half a dozen dwellings, the set back "X" may be reduced to 2.4m. The 2.4m set back relates to normally only one vehicle wishing to join the trunk road at one time. The 4.5m covers the situation where two light vehicles may want to accept the same gap in the trunk road traffic. Where in the case of lightly used accesses the site conditions are particularly difficult, then the set back "X" may be reduced to 2.0m as a Relaxation. Any further reduction would be a Departure from Standard under para 1.15.

2.22 The "Y" distance along the major road, the all purpose trunk road, shall be determined from Table 2/1:

Design speed of major road (kph)	120	100	85	70	60	50
"Y" Distance (m)	295	215	160	120	90	70

Table 2/1: Value of "Y" Distance

Note, these figures correspond to the Desirable Minimum Stopping Sight Distances set out in Table 3 in **TD9 (DMRB 6.1.1)**. Relaxations are not available on these figures.

2.23 Design speed on the all-purpose trunk road required for determining the "Y" distance shall be as given in **TD 9 (DMRB 6.1.1)** for existing and proposed roads and can be based upon measurement, speed limits or design speed principles.

2.24 In calculating sightlines it is important to ensure that the trunk road traffic shall have at least Desirable Minimum Stopping Sight Distances (SSD) on the approached to the access **TD9 (DMRB 6.1.1)**. Relaxations below Desirable Minimum are not permitted under **TD9** on the immediate approaches to junctions and this shall apply to direct accesses.

2.25 The same principles of sightlines in the vertical plane apply to direct accesses as given in **TD9 (DMRB 6.1.1)** for stopping sight distances. Thus, visibility in the vertical plane shall be measured from a driver's eye height 1.05m to 2.00m positioned at the set back distance in the direct access to an object height of between 0.26m ad 1.05m. This will ensure that a vehicle approaching on the trunk road is easily identified at night and that, for example, a child can be identified walking along an adjacent footway. **Figure 2/2** shows the construction required.

2.26 Where an emerging vehicle crosses a footway at a lightly used direct access - for example from the driveway of a single dwelling - pedestrians may not have sufficient warning of its approach. This relates to the situation where the vehicle crosses at the footway level and there is no clearly formed differentiation in the level between the footway and the crossing. Under these conditions, visibility splays to the back of the footway, 2m on either side of the centre of the access, shall be provided from 2m back in the access. The driver's eye height shall be taken as 1.05m and the object height at the back of footway shall be taken as 0.6m to make clear the presence of a small child. This is shown in **Figure 2/3.**