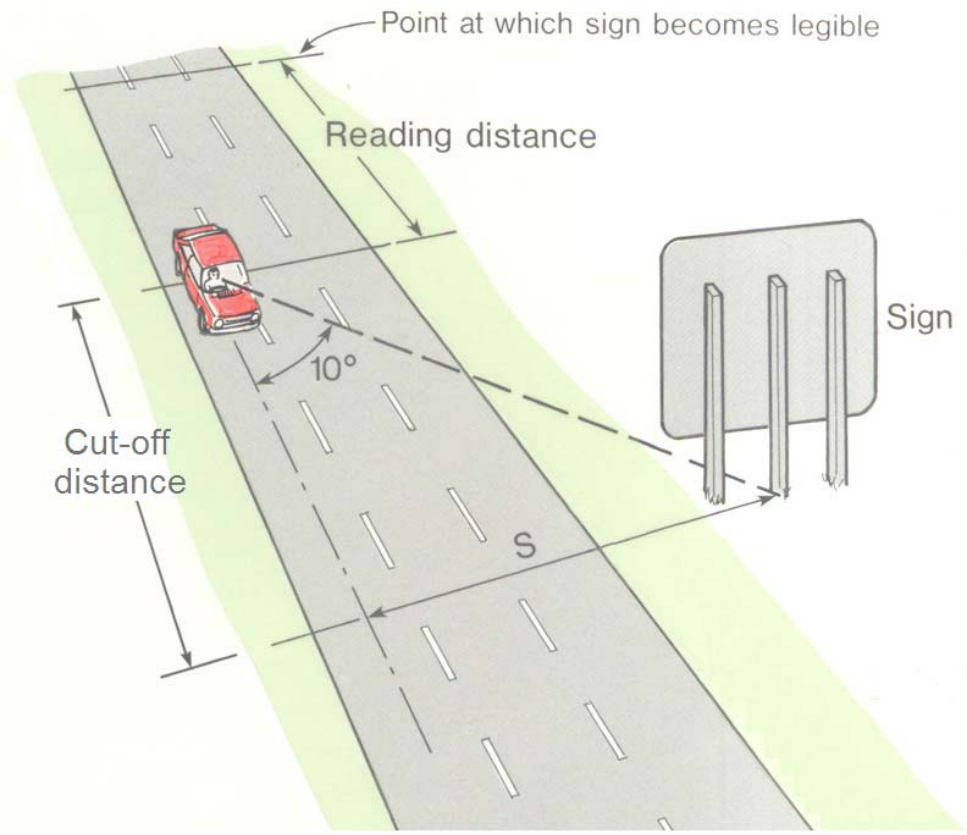
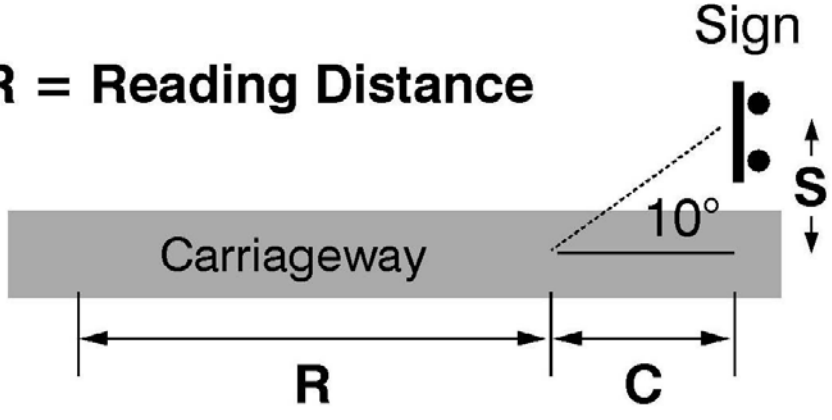
Determination of x-height



S = Off-set Distance

C = Cut-off Distance

R = Reading Distance



"C" is the distance from the sign where a driver is expected to stop reading the sign - i.e the point where a driver would turn his/her head through 10° or more.

C = S x cotangent 10° = S x 5.7

"S" is the off-set distance from the centre of the driving lane to the centre of the sign. On dual carriageways this is measured from the centre of the right-hand-most lane.

"R" is the distance travelled when reading the sign.

R = Reading Time x Speed

Reading time = 2 + (N/3) seconds
where N is the number of words or destinations on the sign.

When N equals 6, reading time is 4 seconds. This is taken to be the maximum desirable time for reading the sign. It allows for scanning the sign twice to assimilate the information. It should be remembered that the sign may be obscured for part of the time by high vehicles and that the driver still needs to pay attention to the road ahead. Because 4 seconds is taken as the maximum time to be allowed for reading the sign, the number of destinations should not exceed six.

The x-height of the sign depends on the distance the driver is from the sign when he/she starts to read it. It is taken that, on average, at a distance of 60 metres the x-height should be 100 mm (it is proportional so that at a distance of 30 metres the x-height would need to be 50 mm)

Worked Example

Single carriageway 8 metres wide (lane width 4 metres)

85 percentile speed 50 mph (22 metres per second)

Sign 2 metres wide and 1 metre from edge of carriageway

S = 2 [centre of lane] + 1 [verge width] + 1 [half sign width]

S = 4 metres

C = S x 5.7 = 4 x 5.7 = 22.8 metres, say 23 metres

R = reading time x speed = 4 x 22 = 88 metres

Total distance from sign = R + C = 88 + 23 = 111 metres

Required x-height = (100/60) x 111 = 185 mm

This is site specific and is more accurate than the table in Local Transport Note 1/94.