

## Chapter 16: Road lighting

### 16.1 Road classification

Road lighting is divided into three classes; traffic routes where the needs of the driver are dominant, subsidiary roads where the lighting is primarily intended for the pedestrian and the cyclist, and urban centres, where the lighting is designed to do what can be done for public safety and security, while also providing an attractive nighttime environment. The photometric recommendations for all types of road lighting in the UK are given in BS EN 13201: Part 2. Advice on the implementation of these recommendations is given in BS 5489-1 together with Amendment 2.

### 16.2 Lighting for traffic routes

Lighting for traffic routes is lighting designed primarily to meet the requirements of the driver of a motorised vehicle. Road lighting recommendations identify three distinct situations; traffic routes where motorised vehicles are dominant and move without conflict, the edges of roads where pedestrians and cyclists may be at risk, and conflict areas where streams of motorised vehicles intersect with each other or with pedestrians and cyclists.

#### 16.2.1 Lighting recommendations for traffic routes

The primary function of the lighting of traffic routes is to make other vehicles on the road visible. Road lighting does this by producing a difference between the luminance of the vehicle and the luminance of its immediate background, the road surface. This difference is achieved by increasing the luminance of the road surface above that of the vehicle so that the vehicle is seen in silhouette against the road surface.

The criteria used to define lighting for traffic routes are:

*Average road surface luminance:* The luminance of the road surface averaged over the carriageway ( $\text{cd/m}^2$ ).

*Overall luminance uniformity ( $U_o$ ):* The ratio of the lowest luminance at any point on the carriageway to the average luminance of the carriageway.

*Longitudinal luminance uniformity ( $U_l$ ):* The ratio of the lowest to the highest luminance found along a line along the centre of a driving lane. For the whole carriageway, this is the lowest longitudinal luminance uniformity found for the driving lanes of the carriageway.

*Threshold increment:* A measure of the loss of visibility caused by disability glare from the road lighting luminaires. Quantitatively, percentage threshold increment is given by the expression

$$TI = 65 (L_v / L^{0.8})$$

where :  $L_v$  = equivalent veiling luminance ( $\text{cd/m}^2$ ) (see section 2.6.3)

$L$  = average road surface luminance ( $\text{cd/m}^2$ )

*Surround ratio:* The average illuminance just outside the edge of the carriageway in proportion to the average illuminance just inside the edge of the carriageway.