

This process can be repeated for adjacent luminaires and the contributions from all luminaires summed to get the illuminance at that point for the whole lighting installation. This process can then be repeated over an array of points on the road so as to get the illuminance metrics used for the lighting of conflict areas.

Alternatively, manufacturers often provide a relative isolux diagram, this being the illuminance pattern provided on the road surface by a single luminaire relative to the maximum illuminance and plotted in terms of mounting height. Given a layout of luminaires around a conflict area, the mounting height and information about the maximum illuminance, the overall illuminance pattern can be generated. Some suggested luminaire layouts for commonly occurring conflict areas, e.g. roundabouts, are given in BS 5489: Part 1 as is advice for special locations, such as bridges, elevated roads and around airfields. BS 5489: Part 2 provides guidance on the lighting of tunnels.

Plotting of luminaire positions

Having determined the ideal spacing, the luminaire positions are identified, starting with the conflict areas. After these are settled, the luminaire positions for the traffic routes and adjacent areas are identified.

16.3 Lighting for subsidiary roads

16.3.1 Lighting recommendations for subsidiary roads

Subsidiary roads consist of access roads and residential roads and associated pedestrian areas, footpaths and cycle tracks. The main function of lighting of subsidiary roads and the areas associated with them is to enable pedestrians and cyclists to orientate themselves and to detect vehicular and other hazards, and to discourage crime against people and property. The lighting in such areas can provide some help to drivers but it is unlikely to be sufficient for revealing objects on the road without the use of headlamps. The main purpose of lighting footpaths and cycle tracks separated from roads is to show the direction the route takes, to enable cyclists and pedestrians to orientate themselves, to detect the presence of other cyclists, pedestrians and hazards, and to discourage crime against people and property.

Illuminance on the horizontal is used as the lighting criterion for subsidiary roads and associated areas. The illuminances associated with each lighting class are given in Table 16.4. The lighting class to be used is determined by the traffic flow, the environmental zone, the level of crime and the colour rendering of the light source used (Table 16.9). In this table, low traffic flow refers to areas where traffic is typical of a residential road and solely associated with adjoining properties. Normal traffic flow refers to areas where traffic flow is equivalent to a housing estate access road. High traffic flow refers to areas where traffic usage is high and can be associated with local amenities such as clubs, shopping facilities and pubic houses. The crime rates should be considered relative to the local area. The environmental zones (E1 to E4) are as defined in Table 6.1. The divide in CIE general colour rendering index (CRI) at 60 means that the use of low pressure sodium or high pressure sodium light sources calls for a higher illuminance than fluorescent and metal halide light sources. The S-class may be increased one step where there are traffic calming measures.