



Stockton-on-Tees
BOROUGH COUNCIL

Street Lighting Policy

Consultation Draft

February 2010 V1

STREET LIGHTING POLICY

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Appendix A: Environmental Zones

1. INTRODUCTION

The purpose of this policy is to outline the requirements for the provision, installation and maintenance of all types of external public lighting which is, or will be, the responsibility of the Highway Authority

Public lighting is a part of a sustainable transport policy, helping to increase the use of highways after dark. The provision and maintenance of effective and efficient public lighting enables roads and footpaths to be used safely, giving highway users more confidence whilst improving their sense of personal safety and security.

Road types and usage vary in nature and the level, type, design and maintenance of lighting systems may also vary.

On principal and distributor roads, where traffic speed and flows are important, vehicles dominate and public lighting systems are designed for this purpose.

On residential roads, where the pedestrian and cyclist are dominant, the lighting system is designed appropriately around their needs.

This policy, and the practises therein, will contribute to a strategy that will:

- (a) Maintain good quality lighting
- (b) Optimise maintenance frequencies
- (c) Attain minimum outages
- (d) Use energy efficient technology
- (e) Aim to reduce emissions of CO₂ by 25% by 2013
- (f) Reduce energy consumption

The details of the policy are designed around the following headings:

- (a) Overview of Standards and Lighting Provision
- (b) Main Objectives
- (c) Lighting Standards
- (d) General Requirements
- (e) Maintenance Requirements
- (f) Assessment of Public Lighting Schemes
- (g) Performance Indicators
- (h) Introduction of Centrally Management Systems
- (l) Passively Safe Lighting and Traffic Signs

2. Overview

Standards

All public lighting provided on the adopted highway shall be designed and installed in accordance with BS5489-1:2003 + A2:2008, Code of Practice for the design of road lighting part 1: Lighting of roads and public amenity areas and BSEN 13201-2:2003, BS5489-2-2003, part 2 Lighting of Tunnels, PD CEN/TR 13201-1-1:2004 Selection of Lighting Classes, BS EN 13201-3:2003 Calculation of Performance, BS EN 13201-4:2003 Methods of Measuring Lighting Performance and BS 5489 Guide to General Principles.,

In some areas of Stockton-on-Tees, the provision of public lighting shall comply with local strategies that have been developed, for example regeneration or conservation areas that are identified for particular lighting designs.

Provision of Lighting

The reduction of night time accidents and the subsequent increase in the night time safety of road users is a major benefit to be gained by the provision of public lighting. The potential reduction in night time accidents may be used as a means of assessing the value of public lighting as a road safety action as detailed in the Department of Environment, Transport and The Regions Design Manual for Roads and Bridges Advice Note TA49/07 'Appraisal of New and Replacement Road Lighting on the Strategic Motorway and All Purpose Trunk Road Network'.

Road safety is not the only benefit from the provision of public lighting. Various studies have demonstrated that the provision of good public lighting can reduce crime levels and the fear of crime.

Section 17 of the Crime and Disorder Act 1998 requires all local authorities, including joint authorities and police authorities, to consider crime and disorder while exercising their duties. The Act also places an obligation on Local Authorities to develop and implement safer community strategies. The presumption must now be that improved street lighting be included within local strategies alongside other physical and social improvements.

In determining whether or not lighting should be provided at a particular location or length of highway, unless consultation and demand determine otherwise, then the following categories apply:

Roads in Rural Countryside	Generally not lit, except residential and Industrial Estates
Roads in Urban Areas	Generally lit
Roads in Conservation Areas:	May be lit, however, specialist lighting considered a preferred option.
Urban	Generally lit
Rural	Assessment required

3. Main Objectives

Stockton-on-Tees Council etc

Our Vision

Council's corporate objectives to be included here.

The lighting service is instrumental in the new challenge of the Crime and Disorder Act 1998 with due regard to Section 17 of the Act which states 'without prejudice to any other obligation imposed on it, it shall be the duty of each Authority to which this section applies to exercise its various functions with due regard to the likely effect of the exercise of those functions, and the need to do all that it reasonably can to prevent crime and disorder in its area'.

Street lighting is provided under the Highways Act to prevent danger to road users and not directly for other reasons, although the demand on the service is increasing to aid crime prevention.

A 25% reduction of CO₂ and energy by 2013 is a corporate aim, therefore, this is seen as a major challenge to the street lighting service.

The objectives can be achieved by:

- (a) Providing a safe road network for all road users;
- (b) Minimising the environmental impact of public lighting;
- (c) Ensuring that public lighting is in keeping with and integrated into the infrastructure.
- (d) Helping to reduce crime and the fear of crime;
- (e) Providing a cost effective public lighting service;
- (f) Energy conservation and sustainability
- (g) Reduction of CO₂ 25% by 2013
- (i) Prevention of fatalities and serious injuries, caused by vehicular collisions with street furniture, through the use of passively safe lighting and other equipment.

4. **Lighting Provision**

The Local Government Act 1966 transferred roadway lighting systems from Lighting Authorities to Highway Authorities from 1 April 1967. The Lighting Authorities previously responsible were District, Borough, Town or Parish Councils and roadway lighting was defined by the parameters of spacing between lamps and their height above ground level. The systems which did not conform to the parameters were called 'footway lighting' and the responsibility for such systems remained with the Lighting Authority. Many such systems have been upgraded by Parish and Town Councils to roadway lighting systems and subsequently adopted by the Council as Highway Authority.

The Highway Act 1980 preserves the provisions of the Local Government Act 1966 and Section 97 of the Act states that the Highway Authority may provide lighting for the purpose of any highway or proposed highway for which they are, or will be, the Highway Authority, and may for that purpose:

- (a) contract with any person for the supply of gas, electricity or other means of lighting; and
- (b) construct and maintain such lamps, columns and posts and other works as they consider necessary.

The power of a Lighting Authority under Section 161 of the Public Health Act shall not be exercised for purposes of lighting any highway for which they are not the Highway Authority except with the consent of the Highway Authority (which may be given either generally or in respect of any particular highway or length of highway and either without conditions or subject to such conditions as the Highway Authority think fit).

The legislation, therefore, allows the Council as Highway Authority to provide lighting on any highway Parish or Town Councils as Lighting Authorities to provide lighting with the consent of the Council. All such lighting may be adopted by the Council for energy and maintenance.

To ensure that the Council meets its requirements under the terms of the Highways Act and its obligations resulting from the Crime and Disorder Act the following policy is adopted:

Where the Council is acting in its capacity as Highway Authority, each request for the provision of lighting and the adoption of potential lighting, including those to be funded by others, is to be considered on its merits based upon the following general policy guidelines. The Council shall take responsibility for the maintenance costs and energy charges, including future replacement costs, where appropriate.

- (a) Adopt new roadway lighting installations provided on highways built to adoptable standards and which are to be maintained at public expense,

including those covered by Section 38 and 278 Agreements under the Highways Act 1980.

(b) Provide or fund from the installation of new lighting on adopted highways and adopt street lighting on highways where one or more of the following criteria apply:-

1. there is a high night time accident record;
2. there is significant night time use by the travelling public, pedestrian or vehicular, and no reasonable alternative lit route exists;
3. there are recorded incidents of crime and disorder
4. existing street lighting columns replaced as a result of risk assessment and structural testing in accordance with the Institution of Lighting Engineers Technical Report 22 Managing a Vital Asset; Lighting Supports
5. the provision of the lighting is identified as a requirement to support the Council's aim to discharge its duties under the Crime and Disorder Act.

The provision of lighting may not be the most cost effective means of reducing night time accidents on main roads in rural areas. Other carriageway improvements such as delineation of carriageways by reflective studs, improved signing, and carriageway markings should be considered before installing public lighting or as a method of decommissioning existing lighting.

In addition, as part of a strategic case to reduce energy consumption, CO2 and light pollution, lighting may be removed in certain areas, such as high speed rural roads where lanterns are fitted to NEDL or SBC owned wood/cast steel poles.

The Council has a target of a 25% reduction in energy consumption by 2013. To achieve this aim, lighting shall either be removed, switched off at agreed times or dimmed at certain times.

The provision and standard of public lighting will depend upon many factors including location, need, environmental issues, traffic, crime rates and cost. Areas with above average crime rates may benefit from high levels of public lighting, whereas, environmental factors may dictate the type of lighting in rural areas

The Wildlife & Countryside Act (1981) (as amended) and the Conservation (Natural Habitats, etc) Regulations 1994 (as amended) shall be taken into account, particularly in respect of the effect of artificial lighting on protected species. There are numerous publications providing advice in this regard, including The Institution of Lighting Engineers and Bat Conservation Trust guidance 'Bats and Lighting in the UK.

There are a number of designated conservation areas within Stockton-on-Tees. The Council has a duty to preserve and enhance their character. Public Lighting in conservation areas, where provided, shall take into account the characteristics of the area. Although free-standing lighting columns do not require planning permission, the Council shall consider and determine any day/ night time environmental constraints.

Non-standard lighting equipment shall generally be considered within conservation areas only

The Institution of Lighting Engineers 'Guidance Notes for the Reduction of Obtrusive Light' recommendation for zoning of areas shall be used when assessing lighting requirements.

Zone E1 – National Parks, Areas of Outstanding Natural Beauty, Sites of Special Scientific Importance and other Dark Area.

Villages and settlements within a Zone E1 area shall only be provided with lighting when requested by the Parish Council or residents and then limited to strategic locations such as telephone boxes, bus stops etc. Lighting shall be restricted to CEN Luminous Intensity Class G4/5 if possible otherwise Class G2/3, as specified in Table A1 of luminous intensity classes in EN 13201-2:2003 Annex A.

In Zone E1 areas outside villages and settlements shall only be provided with lighting where there is a known night time safety problem which cannot be controlled by other methods such as reflective studs, signing etc. New lighting installations shall be provided to the minimum level proposed by the Standard and be full cut off, CEN Luminous Intensity Class G6.

Consideration shall be given to dimming or switching to reduce or vary lighting levels

Zone E2 - Areas of Low District Brightness (Rural Location outside Zone E1)

Villages and settlements within a Zone E2 area shall generally be provided with lighting in accordance with the relevant standard applicable to the type and use of the highway. Consideration shall also be given to the lighting of footpaths and cycle tracks with high night time use. Further details on the lighting of cycle tracks are available in the Institution of Lighting Engineers Technical Report No 23, Lighting of Cycle Tracks, 1998. However, where a cycle track or footpath is remote from a highway or properties and an existing alternative lit route

exists, regard should be given to whether it is safe to attract people on to isolated areas by the provision of lighting. Lighting shall be CEN Luminous Intensity Class G4/5 if possible otherwise Class G2/3.

On roads between villages and settlements in Zone E2 areas lighting shall only be provided where there is a known night time safety problem which cannot be controlled by other methods. New lighting installations shall be provided to the minimum level recommended by the Standard and be CEN Luminous Intensity Class G6.

Roundabouts are areas of high traffic conflict and are therefore generally provided with a system of lighting. Rural roundabouts in Zone E2 areas shall be provided with a system of lighting to the minimum level recommended by the Standard and be CEN Luminous Intensity Class G6.

It may be possible to provide adequate lighting for the safety of the motorist in such locations by means of a single centrally mounted lighting column instead of a proliferation of lighting columns around the perimeter of the roundabout. The height of the column shall be kept to the minimum but adequate to ensure that the whole of the carriageway around the island is correctly illuminated.

Complex junctions in Zone E2 areas shall only be lit when it can be shown that there is a significant night time traffic flow and no alternative remedial safety actions are effective. New lighting shall be provided to the minimum level recommended by the Standard and be limited to the minimum area necessary for road safety. Careful consideration shall be given to the height and number of columns and to the wattage of the lamp used. New lighting shall be CEN Luminous Intensity Class G6.

Care shall be taken were there is a cycle track or footpath adjacent to a lit roundabout, lit complex junction or lit rural road to ensure that any conflict points where cyclists, pedestrians and motorists meet or cross are adequately illuminated.

Areas of special environmental interest in Zone E2 areas shall be subject to an individual assessment to determine the benefits or otherwise of providing a system of street lighting.

Consideration shall be given to dimming or switching to reduce or vary lighting levels.

Zone E3 - Areas of Medium District Brightness (Urban Location)

Within an urban location all highways shall be lit in accordance with the relevant standard applicable to the type and category of the highway.

- (a) Primary Routes
- (b) District Distributors
- (c) Local Distributors
- (d) Access Roads
- (e) Shared Access Roads
- (f) Secondary Access Roads

Category a), b) and c) roads will mainly be classified as traffic routes and shall be lit accordingly. Glare shall be restricted to CEN Luminous Intensity Class G2/3 but Class G4 used if possible.

Category d), e) and f) roads will generally be considered as residential and lit accordingly. Glare shall be restricted to CEN Luminous Intensity Class G2/3.

Consideration will also be given to the lighting of footpaths and cycle tracks with high night time use. However, where a cycle track or footpath is remote from an adjacent highway or properties and an existing alternative lit route exists, regard shall be given to whether it is safe to attract people on to isolated areas by the provision of lighting. Glare shall be restricted to CEN Luminous Intensity Class G2/3.

Areas of special environmental interest in an urban area would normally be lit subject to an individual assessment to determine the benefits or otherwise of providing a system of street lighting at such locations and to assess any environmental restrictions on the type and level of lighting to be provided.

Consideration shall be given to dimming or switching to reduce or vary lighting levels

Zone E4 - Areas of High District Brightness (Urban Centres with high night time usage)

Within urban centres the type and level of lighting provided will need to be designed to suit a number of conflicting needs and use. Many roads in such areas carry high volumes of traffic, particularly at peak hours, indicating a need for them to be treated as traffic routes and lit accordingly. However, after the rush hour period many revert to pedestrian routes carrying high volumes of people enjoying the facilities of the town/city centre. Flexible lighting schemes shall be provided that result in adequate illumination for the motorist but also an interesting and attractive ambience for people to enjoy themselves.

Consideration shall be given to dimming or switching to reduce or vary lighting levels, or to the use of different height lighting columns to suit the alternative uses.

Zone E4 areas are generally bright and lively, however, care shall still be given to the restriction of glare to CEN Luminous Intensity G2/3.

Consideration is also to be given to the effect of lighting on adjacent areas used by other means of transport such as:

- Airports
- Railways
- Harbours
- Adjacent unlit traffic routes

Residents in the vicinity of proposed new or replacement lighting schemes shall be advised of the reason for the works, a brief overview of design parameters, the installation process, and contact details for queries in advance of any works starting on site. In addition feedback, in the form of a questionnaire, will be sought to enable improvements to be made to service delivery where necessary.

Officers will consult with various parties if and when necessary before making any decisions on the removal of lighting columns, particularly in Zone 1 area. Consultation was being prepared by officers for new and replacement lighting schemes. No lighting is currently being removed at the present time.

All external lighting other than highway lighting should be subject to planning approval to prevent light pollution, this should therefore, be subject to design checks by the Council to prevent overspill and impact on surrounding areas. There is currently no legislation in place.

5. Lighting of Pedestrian Crossings

Pedestrian Crossings are provided as a means to give safer access and easier movements to pedestrians wishing to cross the road. As the pedestrian is more vulnerable in an accident involving a vehicle, the vision of all users is of paramount importance. During the day, this is generally not a problem. At night, a lighting system shall be provided to enable pedestrians to clearly judge traffic conditions and drivers to correctly interpret the visual scene and view pedestrians.

Crossings shall ideally be lit as a conflict area as detailed in the current British Standards. Where night time use is high then supplementary direct illumination over the full carpet of the crossing using a light source differing from the main road may be considered.

The Institution of Lighting Engineers Technical Report TR12 Lighting of Pedestrian Crossings shall be used for guidance and each crossing shall be considered on its own merits.

6. Lighting of Traffic Calming Features

Traffic calming is designed to reduce the speed and type of traffic using a highway. Physical barriers are placed in the highway reducing carriageway width or adding speed humps or cushions.

Section 5 of the Highway (Road Hump) Regulations 1996 stated that: 'Subject to Regulation 7 (which precludes roads with a speed limit of 20 mph or less) no road hump shall be constructed in any highway unless in that highway there is lighting for that road hump which is:

- (a) a system of street lighting furnished by at least three lamps lit by electricity and placed so that not more than 38 metres separate any of the lamps from the next one to it, or
- (b) a system of street lighting complying with the British Standard for Road Lighting published by the British Standards Institution under number BS5489 or with a standard or Code of Practice of a national standards body or equivalent body of any member state of the European Community; or
- (c) lighting specially provided for the road hump.

The Regulations do not specify the level or standard of lighting required but a system of lighting designed to BS5489 for the classification of the road is required to cover approaches to and the position of all traffic calming features.

7. Lighting of Pedestrian Subways

Subways are provided as a safe route for pedestrians and cyclists to cross traffic routes. This provision should be maintained in a safe and usable condition at all times.

Lighting shall be designed and installed in accordance with BS5489 part 9, Section 10, Code of Practice for Lighting for Urban Centres and Public Amenity Areas and, in addition, the lighting of the exits and entrance approaches should be adequately lit to reduce transitions in lighting levels.

Highly vandal resistant fittings shall be used in such subways.

8. Obtrusive Lighting

Obtrusive light is light which falls outside the area to be illuminated which can cause discomfort, annoyance, and distraction or reduces the ability to see. Obtrusive light is referred to as light pollution which can be divided into three main categories:

- Sky glow
- Glare
- Light trespass

The obtrusive light shall be restricted by:

- The control of the type of light source
- Restricting the level of light emitted at high angles between 70 and 90 degrees
- The use of full horizontal cut off (flat glass) luminaries where appropriate

Attention is drawn to the ILE Guidance Notes for the Reduction of Obtrusive Light which includes the recommendation that for road lighting installations, light near to and above the horizontal should be minimised. The use of full horizontal cut off luminaries installed at 0° uplift will minimise visual intrusion within the landscape as well as upward light. In urban situations luminaries fitted with shallow bowls provide good control of light near to and above the horizontal.

9. Selection of Lighting Levels

All new and improvements to existing public lighting provided on the adopted highway shall be designed and installed in accordance with the appropriate Standards and Codes of Practice including BS5489-1:2003 + A2:2008, Code of Practice for the design of road lighting part 1: Lighting of roads and public amenity areas and BSEN 13201-2:2003, BS5489-2-2003, part 2 Lighting of Tunnels, PD CEN/TR 13201-1-1:2004 Selection of Lighting Classes, BS EN 13201-3:2003 Calculation of Performance, BS EN 13201-4:2003 Methods of Measuring Lighting Performance, and BS 5489 Guide to General Principals.

1. The actual level of public lighting to be provided shall be determined by the methods shown in the European Standard prEN 13201: 1998, Part 1, Selection of Lighting Classes.
2. The Institution of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light provides a recognised means of zoning areas for environmental purposes when assessing lighting requirements.

Deviation from Standards may be allowed in circumstances as described in section 4: Lighting Provision

10. Light Sources

The type of light source, its colour and colour appearance can have a significant effect on the night scene. The attributes of the various light sources that shall be considered for public lighting are:-

SOX – low pressure sodium

- Monochrome yellow orange colour
- Poor colour rendering
- Average lamp life
- Highest energy efficiency
- No further development from manufacturers
- Limited optical control

SON – high pressure sodium

- Golden yellow colour
- Average colour rendering
- Long lamp life
- High energy efficacy

CDM-T – ceramic high intensity discharge metal halide

- Crisp white colour
- Excellent colour rendering
- Average energy efficacy
- Average lamp life

CDO – ceramic metal halide

- Attractive white light
- Excellent colour rendering
- Good energy efficacy
- Average lamp life

Cosmopolis – ceramic metal halide

- Attractive white light
- Good colour rendering
- Best optical efficacy
- High energy efficacy
- Average lamp life

PL – compact fluorescent

- Full spectrum white light
- Good colour rendering
- Average lamp life
- High energy efficiency
- Limited optical control

LED.-Light Emitting Diode

- Low maintenance implications
- Low energy usage
- Extensive Lamp Life
- White light source
- Luminaires still under development

Low pressure sodium (SOX) lamps produce the most lumens per watt of energy consumed but the superior optical light control which can be applied to other physically smaller lamps make such lamps more cost effective.

New low pressure SOX lighting is to be restricted to existing SOX lit areas and to short extensions of existing installations. The installation of new lighting shall generally use high pressure sodium lamps SON of the tubular lamp version with high lumen output designated as SON-T plus.

British Standards allow the lowering of lighting classes for light sources with good colour rendering. In such cases, or where dictated by environmental factors, CDM-T, CDO, Cosmopolis, compact fluorescent lamps and LED's shall be used where appropriate.

11. Luminaires

Luminaires used for road lighting shall be integral and fitted with electronic control equipment.

The luminaries should be manufactured to BS EN 60598-2-3 1994 (BS4533) and incorporate an efficient optical system to direct the light onto the highway. To ensure minimum environmental pollution of the night sky the upward light from the luminaire shall be kept to a minimum. Luminaires will be specified with due consideration of the Institution of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light.

All luminaries shall be manufactured from vandal resistant materials and to prevent the ingress of dust and moisture new luminaries shall have an international protection rating of not less than IP65.

Consideration shall generally be given to non-standard luminaires in conservation areas only based upon individual assessment and future revenue implications.

12. Steel Lighting Columns and Brackets

Columns shall be manufactured from tubular, sheet steel, or aluminium as agreed at design stage and shall conform to the following:

- i) The column and bracket manufacturer shall be registered with and accredited under the Quality Assurance Scheme ISO9002 for the manufacture, supply and verification of lighting columns. A copy of the accreditation document shall be supplied to the Engineer on request.
- ii) All columns and brackets shall be manufactured, supplied and installed in accordance with the requirements of BS5649 or revision of such. Columns shall be manufactured in accordance with the requirements of BD 26/99 and the design of all columns shall include for the mounting of a sign plate 5kg x 0.3m² x 1.8 shape coefficient mounted 2.5 metres above ground and 300mm eccentrically.

- iii) Unless otherwise agreed by the Engineer, columns and brackets shall be designed to be capable of accepting lanterns with the following weights and windage of lanterns:

Mounting Height metres	Lantern Weight kg	Windage Area m2
5 post top	9	0.15
6 post top	9	0.15
8 post top	12	0.19
10 post top	15	0.22
12 post top	20	0.27
5m with 0.5m projection bracket	9	0.15
6m with 0.75m projection bracket	9	0.15
8m with 1.0m projection bracket	12	0.19
10m with 1.5m projection bracket	15	0.22
12m with 2.0m projection bracket	20	0.27

2. All columns shall have a root for planting to a depth shown by the middle range listed in Clause 5 of Part 2 of BS 5649 as follows:

5 metre columns	800mm planting depth
6 metre columns	1000mm planting depth
8 metre columns	1200mm planting depth
10 metre columns	1500mm planting depth
12 metre columns	1700mm planting depth

3. i) All columns shall have a cable entry slot 75mm x 150mm with the top of the slot 350mm below ground level.
- ii) Columns manufactured in tubular steel shall have shaft and base sections manufactured from continuous lengths of new steel tube and shall not contain any welded or stepped sections.
- iii) The base section of columns shall have a minimum wall thickness of 3.2mm and have base compartment openings of a minimum
- a) 500 x 100mm for 5 and 6 metre columns
- b) 600 x 115mm for 8, 10 and 12 metre columns

The height above ground of the base sections shall be 1250mm.

4. Unless otherwise agreed by the Engineer, all columns shall be designed for the following conditions:-

- (a) Mean hourly wind speed V_{ref} of 25m/s.
- (b) Site altitude of 250 metres.
- (c) Terrain category III for 5 and 6 metre columns.
Terrain category III for 8, 10, and 12 metre columns.
- (d) Topography factor f , shall be 1.0.
- (e) The Partial Safety Factor on loads shall be Class B, wind load 1.2 and dead load 1.2.
- (f) The maximum horizontal deflection of the lantern connection shall be Class 3, $0.1 (h+w)$.

5. Tubular steel columns shall, where specified, be provided with detachable web type steel brackets and shall have a welded web gusset between the spigot and pipe arm and shall have a welded steel spigot cap. For 8 metre columns, and above, the fixing of the bracket to the column shall be over a reduced diameter spigot to maintain the smooth parallel line between the column and bracket arm. The bracket arm shall be held in position by stainless steel screws allowing fixing in any one of four 90° positions relative to the door opening.

A means of preventing undesired rotational movement of the bracket, once fixed in position, to the column shaft shall be incorporated in the column design.

6. Bracket arms shall, unless specified otherwise, provide an incline of lantern of 5° when fitted to spigots of:

- (a) 42mm OD x 110mm long for 5 and 6 metre columns
- (b) 42mm OD x 127mm long for 8, 10, and 12 metre columns.

7. The method of joining the base section and the shaft shall be by a swage joint with an internal centralising washer. All welding procedures shall be in accordance with the requirements of BS EN288 and all welders approved to the requirements of BS EN287 with welding carried out in accordance with BS 5135.

8. The same pattern of door lock shall be used throughout all columns. Keys shall be supplied for 10% of all columns supplied. The door fixing bolt shall have a tapered end to facilitate self centering when closing.

An internal full length, equivalent to the door size, base board, substantially non-hygroscopic, shall be fitted in each compartment for mounting control gear. Base board fixing studs or bolts shall not protrude beyond the front face of the base board. The base board shall be firmly bolted in position. On delivery, the column door shall come assembled on the column.

9. All columns shall be fitted with M8 x 30mm brass earth studs, threaded the whole length, with two plain washers and two nuts within the base compartment and that are easily accessible. Column doors shall be provided with an internal lug to enable earthing of the column door with an M8 brass earth stud.
10. There shall be no sharp edges within columns or bracket arms to damage electrical cables during installation or service. An anti-chafe ring shall be fitted where cable routes change direction from horizontal to vertical within the bracket.
11. Consideration shall generally be given to non standard lighting columns in conservation areas only based upon individual assessment and future revenue implications.

13. **Corrosion Protection for Steel Columns and Brackets**

Unless otherwise specified on Scheme/ Works Orders, all columns and bracket arms shall be galvanised unpainted. If additional protection is specified the treatment below shall be applied before leaving the factory.

- i) Hot dipped galvanised in accordance with BS EN 150 1461 1999.
- ii) The galvanised surface shall then be degreased and left with a smooth finish to prepare for painting.
- iii) The paint system shall comprise:

- | | |
|------------------------|---|
| 1 st Coat - | On the internal root section to 250mm above ground level and on the overall external surfaces one coat of Mordant Solution, T wash. |
| 2 nd Coat - | On the internal root section to 250mm above ground level, one coat of modified vinyl micaceous iron oxide with high solids to give a high build coating colour grey to provide a minimum dry film thickness of 60 microns. |
| 3 rd Coat - | On the external surface overall one coat of two pack high build epoxy zinc phosphate primer, light grey to provide a minimum dry film thickness of 75 microns. |
| 4 th Coat - | On the external root section to 250mm above ground level, one coat of modified vinyl micaceous iron oxide with high solids to give a high build coating, coloured grey to provide a minimum dry film thickness of 75 microns. |
| 5 th Coat - | On the external surface overall, one coat of modified vinyl with high solids to give a sheen finish to the dried |

film colour grey from BS 4800 shade 18B25 to provide a minimum dry film thickness of 60 microns.

- vi) A line on the circumference of the base section shall denote ground level.

The minimum dry film thickness shall be:

Root - 60µm (internal) 210µm (external to 250mm)

External - 135µm (from 250mm)

14. **Switching**

Where not controlled via a CMS system, photo-electric cells shall be used to switch public lighting with an on off level set to 70 lux on and 35 lux off or 35 lux on and 35 off To minimise theft and vandalism, group B units shall use a miniature cell only, a NEMA socket shall not be used.

15. **Raise and Lower Columns**

Where specified, Raise and Lower columns shall be installed at such locations where vehicular access is severely limited, for example, remote footpaths or where the presence of a maintenance vehicle may impede the free flow of traffic. Refuge Island beacon posts may fall within this latter category.

16. **Energy Conservation**

At the 1992 Earth Summit in Rio, the developed Countries agreed to voluntarily reduce emissions of greenhouse gases to 1990 levels by the year 2000.

At the Climate Change Convention in Kyoto in 1997, the developed Countries were legally committed to reduce greenhouse gases affecting the environment.

The UK Government set a target of reducing carbon dioxide emissions by 12.5% on 1990 levels by the year 2010. However, the corporate target is 25% by 2013

A centrally managed systems (CMS) shall be considered the preferred option for all existing and proposed street lighting systems. This shall include all residential major and minor roads.

A CMS is capable of dimming and switching off lights remotely to allow the Council, as highway authority, to control the lighting assets. The system will enable a proactive approach to control lighting. This will contribute towards the reduction of CO₂ emissions and energy consumption.

Therefore, this policy will allow the use of reducing lighting levels on the road network based upon traffic flow to achieve energy reduction and associated CO₂ emissions.

The Council shall consider reducing lighting or dimming street lights at 12 midnight on all residential estates to reduce energy and CO₂. In areas where it is considered crime is high, then this decision will be made following full consultation through the Safer Stockton Partnership.

The Council currently does not switch off street lights of at midnight. However, there may be a case for introducing 'part-night lighting cells' which automatically switch off lighting at, say, midnight. This may be a careful consideration in low risk sites such as remote cycleways.

Energy efficient equipment shall be used at every opportunity and investigations and monitoring of technological developments undertaken.

The advent of electronic ballasts with reduced energy consumption, near unity power factor, and ability to be used in a lamp dimming mode shall be specified, when appropriate.

The use of lower wattage white light sources such as CDM-T PL compact fluorescent, CPO, and LED (Light Emitting Diodes) shall be considered as research is being conducted to show that lower levels of lighting can be provided using white light to achieve the same visual appearance and reduction of energy and maintenance.

17. **Legislation and Regulations**

All public lighting systems installed and maintained should fully comply with the following Legislation and Regulations:

- Highways Act 1980
- Goods and Services Act
- The Local Government Contract Act
- The Management of Health and Safety at Work Regulations 1982
- Electricity at Work Regulations 1989 (in force 1990)
- Traffic Signs Regulations and General Directions 1991
- Disabled Persons Act 1981
- Road Humps Regulations 1990
- New Roads and Street Works Act 1991
- BS 7671: Regulations for Electrical Installations 1992
- BS 5489: Parts 1 – 10 'Code of Practice for Road Lighting'
- BS EN 60529: 'Specification for Clarification of Degrees of Protection provided by Enclosures'
- BS EN 60598 – 2-3: 1994, Luminaires for Road and Street Lighting
- BS5649: 'Lighting Columns'
- BS EN40: Lighting Columns 1992
- Department of Environment, Transport and the Regions Departmental Standard BS26/99 – 'Design of Lighting Columns'
- The Wildlife & Countryside Act (1981) (as amended)
- the Conservation (Natural Habitats, etc) Regulations 1994 (as amended)
- Department of Environment, Transport and the Regions Advice Note TA 49/07 – 'Appraisal of New and Replacement Lighting on Trunk Roads and Trunk Road Motorways'
- Passively Safe Road BS EN12767

18. **Maintenance Requirements**

Maintenance policies and strategies shall provide cost effective solutions in keeping the network in safe working order. The guidance given in the Code of Practice for Highway Lighting Management 'Well Lit Highways' produced by the UK Lighting Board November 2004 and passively safe roads should be adhered to, a summary of the recommendations contained within are:

1. The authority's policy in relation to the provision of its public lighting service should be clearly stated and should cover all the organisation and services involved in delivering the service.
2. All personnel engaged in public lighting operations should be trained in accordance with national guidelines such as those produced by the Institution of Lighting Engineers and issued with the appropriate certification.
3. No operatives should be placed at risk due to lack of skills on the part of themselves or others dealing with electrical equipment.
4. Each authority should establish and maintain up to date and accurate inventory of all highway electrical equipment (including authority cable networks) as part of its asset management system.
5. Authority cable networks should be recorded on Ordnance Survey based plans or alternatively on a Geographic Information System.
6. An asset management system should be used to control and record all cyclical and reactive maintenance activities.
7. Cyclical maintenance intervals for lighting installations should be determined to ensure the installations correct operation and light output, minimise failures and maximise life.
8. Lamp replacement policies should be carefully evaluated taking account of local technical and geographic considerations, to maintain light output whilst limiting the number of lamp failures to an acceptable level.
9. Each authority should establish and operate a system for monitoring the operational status of its equipment.
10. Each authority should establish and operate a system for the reporting of faults by the public. The system should allow for the reporting of emergencies 24 hours per day each day.
11. Each authority should establish and enforce specific response times for each maintenance task.

12. Each authority should determine the frequency of electrical inspection and testing and carry out such works at a frequency of not less than once every 6 years.
13. The condition of all enclosures, including the general structural condition of lighting columns, illuminated traffic sign posts, feeder pillars etc should be recorded on the operative report at each maintenance visit.
14. New steel lighting columns should, as a minimum, be hot dipped galvanised. If required and specified by the Lighting Engineer consideration should be given to the application of further protective coating by the lighting column manufacturer at the time of manufacture.
15. A programme for the maintenance and reapplication of protective coatings for *in situ* lighting column or illuminated traffic sign post should be determined and implemented taking account of the location, existing protective system and any other environmental factors including atmospheric conditions.
16. A risk assessment strategy for the management of the structural safety of lighting columns and illuminated traffic sign posts should be carried out in accordance with the Institution of Lighting Engineers Technical Report 22: Managing a Vital Asset – Lighting Supports.
17. Each authority should negotiate a formal service level agreement with the Distribution Network Operator (DNO).
18. Each authority should ensure that their procedures, and those of any contractor, do not prevent the DNO from meeting agreed performance standards.
19. Each authority should consider the use of competitive tendering for highway electrical maintenance as part of its Best Value policy.
20. Each authority should seek competitively tendered supplies of electricity for its highway electrical equipment.

19. **Levels of Maintenance**

a. **Fault Detection**

All lighting is required to be inspected at the frequency listed under the section dealing with Performance Indicators. The inspection is to detect and record lighting faults which are visually obvious.

The preparation of the work instruction for fault rectification is the responsibility of the maintenance contractor who also executes the inspections. This method minimises the outage times of failed lighting. Priority of repairs is given to those faults which present the most danger to the public, such as sections of lights being inoperative.

b. **Cyclic Maintenance**

Cyclic or routine maintenance operations are to be carried out as a preventative maintenance operation which is also to identify any work necessary to keep the installation safe, both structurally and electrically. This maintenance consists of the following:

- (a) Lantern cleaning
- (b) Photo-cell cleaning
- (c) Visual inspection and minor repairs to electrical equipment
- (d) Full electrical inspection and test when specified
- (e) Mechanical maintenance
- (f) Structural inspection
- (g) Inventory data verification
- (h) Maintaining Centrally Managed Systems
- (i) Reduction of Patrolling of CMS systems
- (j) CMS faults to be linked to Data Collection and electronically managed

c. **Inventory**

An inventory of all highway electrical equipment is maintained on an Exor database. The details of the location, condition, wattage, lamp type, burning hours, lanterns, supply, column type, height and year of installation, together with service arrangements are recorded.

The database is used to produce cyclic maintenance schedules, electrical testing schedules, structural inspection and testing information and returns to the Regional Electricity Company for energy charging. Data relating to column risk management (TR22) should also held on the data base which is used to produce column condition indicators.

d. Lamp Replacement

The Council currently operate a bulk lamp replacement system whereby lamps are changed during a cyclic maintenance visit every three/four years or 12000/16000 hours of lamp operation, based upon lamp type/manufacturers recommendations.

(Some Council's operate a 'burn to extinction' policy and replace lamps only on failure. This is not considered effective for financial or operational reasons)

e. Column Testing and Column Replacement

A risk assessment strategy in accordance with the Institution of Lighting Engineers Technical Report TR22 Managing a Vital Asset: Lighting Supports for the management of the structural safety of lighting columns has been developed and is being implemented. The data collected on the column attributes and the environment in which it operates is used in a statistical calculation to allocate an action age to each column and also to allocate a priority for the consequences of a column failure. The action age is the recommended age of the column when some action should be taken to establish the structural integrity of the column and on columns of 8m in height and above they shall be subject to a structural test where a load is applied to the column and resultant deflection measured and analysed. Column replacement programmes shall be compiled using the difference between the actual column age and its action age and taking into consideration the consequences of failure to prioritise selection of columns for replacement.

f. Testing – Electrical

The Electricity at Work Regulations state that ‘as may be necessary to prevent danger, all systems shall be maintained so as to prevent, so far as is reasonably practical, such danger’. To provide the basis for determining installations meet the safety standards, testing and inspection should be carried out in accordance with Chapter 73 of BS7671: Requirements for Electrical Installations. The frequency of the testing should be once every six years and coincide with a cyclic maintenance visit, which is every two years.

g. Legislation and Competency

Regulation 16 of the Electricity at Work Regulations 1989 requires that no person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience or is under such degree of supervision as may be appropriate having regard to the nature of the work.

Testing of fixed equipment (Lighting Columns and Illuminated Street Furniture), low voltage, should be tested once every six years and disconnect in 5 seconds in the event of a fault.

Passively Safe (Lighting Columns and Illuminated Street Furniture), low voltage, should be tested once every six years and disconnect in 0.4 seconds in the event of a fault

All operatives shall be appropriately trained and instructed to ensure they understand the safety procedures, which are relevant to their work and are required to have G39 certification.

h. Cable Records

The location of underground cable networks shall be recorded to facilitate repairs, testing, extensions and for providing information to any organisation excavating in the highway in compliance with the New Roads and Street Works Act 1991 and the recommendations of the National Underground Assets Group.

The computer based Exor database of the lighting and signs inventory is linked to an Arc Info Geographical Information System (GIS) which has the location of illuminated signs and street lights plotted. The database and GIS system should be kept up to date by actioning all additions and alterations to the network.

20. **Energy Purchase**

Electrical energy for public lighting, which is generally unmetered, is currently purchased from n-power as a result of competitive tendering. The price per unit (KWhr) is negotiated by the North East Purchasing Organisation (NEPO) of which the Council is a member.

21. **Performance**

- a. The following details indicate a number of key performance targets and indicators that are used to measure and monitor the effectiveness of service delivery.
- b. The public and other interested parties are asked to contact a dedicated telephone number to report any concerns regarding public lighting. This number is operational during normal working hours and a call centre system operates at other times. Callers are asked to assist by reporting the identification number, providing a location address and describing the nature of the concern.
- c. The Council also facilitates communication and organisational arrangements to enable a response to emergencies at any time.

Examples of emergencies warranting attendance include:

- (i) public lighting equipment involved in accident damage; (Road Traffic Accident)
- (ii) the failure of a large section of lighting
- (iii) the failure of lighting at a critical location
- (iv) missing doors
- (v) any incident presenting an immediate danger
- (vi) any underground cable damage
- (vii) Exposed wires

Where a column, or part of a column, is damaged or removed leaving exposed the electricity cable or cut-out this will be covered by a substantially constructed temporary enclosure suitably painted and bearing the legend "DANGER ELECTRICITY - LIVE CABLES" Arrangements are in place to ensure that where the underground cable is the responsibility of the Distribution Network Operator (DNO), an operative shall remain on site until the DNO arrive and take responsibility for the site.

d. Public Lighting Maintenance and Installation Targets

Activity	Frequency	Time for Completion
Cyclic Maintenance All Roads	3 years	As agreed programme
Lamp Replacement (Bulk lamp change in rural areas, replace on failure elsewhere) SOX, SON, PL	4 years	At cyclic maintenance
Night Inspection	14 days	Within one day
Activity	Frequency	Time for Completion
Fault Repairs Minor faults (faults which can be repaired at the first visit)	Upon occurrence and as ordered by the Engineer	Within 5 working days of receipt of notification
Painting	As ordered by the Engineer	Within agreed programme
Cable faults	As ordered by the Engineer	Within 5 working days
Accident damage, Knock-downs	As ordered by the Engineer	Within 5 working days
Electricity at Work Regulations-Testing of Highways Equipment	As ordered by the Engineer	Ongoing
Emergency Attendance to make safe	Upon occurrence	Within 2 hours

To maintain the integrity of the electrical installations, in addition to the visual inspections during cyclic maintenance visits, the units are tested every six years in accordance with the Electricity at Work Regulations and details of test results and inventory recorded on the asset management database.

The specification requires all lighting units to be the subject of an evening inspection every two weeks, when the lights are expected to be fully operational to identify faults. The faults are to be investigated by the Contractor within a maximum of five working days of being notified at which time minor faults shall be rectified.

Faults received are input into a fault database and the order to repair sent electronically at the end of each working day to the contractor for attention within three days.

All external correspondence should be answered, or where not possible, acknowledged within Council Corporate timescales.

Faults which cannot be rectified at the first visit are classed as major faults and are then the subject of individual orders and instructions and passed to the contractor for attention.

Performance Indicators

The average time taken to repair street light faults a) which are in the total control of the authority and b) in the control of the regional electricity company are monitored to assess performance.

Electricity Company Service Levels

The service depends on an electricity supply provided by the Regional Electricity Company (DNO), NEDL, and the agreed Code of Practice regarding the connection and repair of public lighting and includes for the following timescales.

- 1(a) Emergency work, to remove immediate danger to public or property.
Response time 100% in 2 hours.
- 1(b) High Priority Fault Repair, urgent work not requiring attendance out of normal hours.
Response time 100% in 1 day.
- 1(c) Fault Repair – Single Unit, repair to a single lamp service fault where attendance is not required under emergency circumstances or out of hours or within 1 day.
Response time 70% in 10 days 100% in 30 days.
- 1(d) Fault Repair – Multiple Units, repair to a fault affecting supply to more than one lamp (section faults) where attendance is not required under emergency circumstances or out of hours or within 1 day.
Response time 70% in 5 days 100% in 30 days.
- 2(a) New or transferred connections in a batch not exceeding 20 units.
Response time 80% in 20 days 100% in 35 days.
- 2(b) New or transferred connections in a batch between 20 and 50 units.
Response time 80% in 20 days 100% in 35 days.
- 2(c) New or transferred connections in a batch of more than 50 units.
Response time 80% in 20 days 100% in 35 days.

22 **Trees**

Pruning of trees maybe required in order to maintain lighting effectiveness at the kerb edge and for a distance of half way between columns. Pruning of trees on private property will not be done until the owner's consent has been obtained and costs incurred will be recharged. Where the Owner's consent cannot be obtained then the Council will invoke regulatory procedures to deal with the issue.

Some trees may be protected by either a Preservation Order or by being located within a Conservation Area. Where a protected tree is restricting the lighting effectiveness of a lamp or lantern, the Council is empowered under the Highways Act to prune the tree. The Council department that is responsible for Tree Preservation Orders and Conservation Areas shall be consulted before such action is taken.

Maintenance staff will normally undertake pruning and limbing of branches less than 50mm diameter. Where the need for more extensive pruning is identified, then this will be carried out by qualified operatives under the supervision of an arboriculturist.

When works are being carried out to erect or remove lighting columns or excavate cable trenches, there is the potential to damage roots and branches. The guidance given in the publication "NJUG 10 Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees" will be followed to minimise the risk of damage to trees.

23. **Adoption of New Lighting Systems**

All proposed developments within Section 38 and 106 of the Highways Act should be provided with a public lighting system, including illuminated signs, as part of the Agreement.

The requirements for each development shall be agreed with the Highway Authority and conform to the Specification for Street Lighting Installations on Residential and Industrial Estates which may be accessed on the Council's web-site.

Design and Installation

- (a) Street lighting for residential areas shall be, unless otherwise agreed, designed in accordance with British Standard Code of Practice for Road Lighting BS5489: 2003 to meet the requirements for the appropriate S lighting class with 6 metre mounting height columns.

- (b) Street lighting for Industrial Estates shall be, unless otherwise agreed, designed in accordance with British Standard Code of Practice for Road Lighting BS5489:1:2003 to meet the requirements for the appropriate street lighting class generally on 8/10 metre mounting height columns.
- (c) The installation shall comply with BS7671, Regulations for Electrical Installations (IEE Wiring Regulations).
- (d) Every lighting unit and underground cable on completion and before being energised shall be inspected and tested to verify that the requirements of the IEE Wiring Regulations have been met.

Adoption

On satisfactory completion of the agreed scheme to Part 2 requirements, the Council will accept responsibility for the energy charges and will carry out cyclic and minor maintenance on those units serving the roads and footpaths included in the Section 38 Agreement. All major repairs shall remain the Developer's responsibility until the roads are fully adopted.

As-built drawings of column and cable positions shall be provided together with Test Certificates.

24. **Seasonal Decorations on or above the Highway**

1. General

- 1.1 The erection of seasonal decorations on or above the highway shall only be carried out with the prior written approval of the Highway Authority.
- 1.2 All works associated with the provision of seasonal decorations shall be carried out in accordance with the requirements of the County Surveyors' Society, (CSS) Code of Practice for the Installation and Operation and Removal of Seasonal Decorations, second edition, 2005 (CP10RSD).
- 1.3 Seasonal decorations may be attached to existing Lighting Equipment but it is preferred that such decoration be attached to or supported from buildings adjacent to the highway.
- 1.4 Seasonal decorations shall be deemed to include decorations erected for:
- Christmas and other religious celebrations
 - Festivals and other celebrations
 - Flower Decoration including attached and hanging baskets
 - Flags and banners
 - Advertisements
- 1.5 Generally no decoration or its support shall project over the road or within 0.5m of the kerb face at a height less than 5.8m above the road surface. At least 2.5m headroom must be provided over any area for pedestrians.

2. Seasonal Decorations Supported from Adjacent Buildings or Free Standing in the Highway

- 2.1 All seasonal decorations mounted above, or free standing in the highway shall:
- Be approved in writing by the Highway Authority or its agent prior to the erection of the fixtures for a period not exceeding 35 days unless planning permission has been granted for a longer period.
 - Be the sole responsibility of the body installing the decorations and shall be insured with the Highways Authority being indemnified for a minimum of £5.0 million for any one incident.
 - Be removed immediately upon request of the Highway Authority or its agent or be removed by the Highway Authority or its agent

at the owner's expense if there is concern about the safety of the public or the system.

- Be manufactured with supports and mounting points capable of supporting the decorative fixtures, in accordance with CP10RSD.

The electrical requirements for protection against electric shock of CP10RSD shall be adhered to wherein ground mounted installations must be supplied as a maximum by a SELV 25 volt AC power supply protected by a Residual Current Circuit Device, RCD, situated at the source of supply. Equipment mounted above ground to 2.5 metres in height can be supplied at a maximum of 110 volts via a centre tapped transformer (55-0-55) incorporating a suitably rated RCD. Equipment mounted above 2.5 metres can be supplied at 230 volts again incorporating a 30maRCD.

2.2 All Seasonal Decorations shall be erected in compliance with the following statutes and regulations:

- Health and Safety at Work Act, 1974
- Electricity at Work Regulations, 1989
- BS 7671: 1992 Requirements for Electrical Installation, IEE Wiring Regulations, Sixteenth Edition

2.3 No Seasonal Decorations shall conflict with any adjacent traffic signal systems.

3. Seasonal Decorations Attached to Lighting Equipment

3.1 In general, street lighting columns are not designed for the significant additional loads imposed by the attachment of seasonal decoration. Therefore the size and number of seasonal decorations that can be attached to a lighting column is limited. However, the erection of such decorations and fittings will be permitted provided the following additional conditions are met:

3.2 New or replacement lighting systems

- In locations where it is expected that seasonal decorations will be required, the lighting columns shall be manufactured and installed to support the additional loads imposed by weight and wind and a certificate of compliance lodged with the Highway Authority. The additional cost of such columns will be rechargeable to the organisation wishing to install the seasonal decorations.

3.3 Existing lighting systems

- The system of street lighting to be used to support the Seasonal Decorations shall be inspected annually. A competent Structural Engineer shall be commissioned to provide a report to the Highway Authority or its agent prior to the erection of the decorative lighting confirming that the columns are structurally safe and can support the proposed seasonal decorations.
- Seasonal decorations must not hinder the normal operation or maintenance of the highway or the Lighting Equipment.
- No banners, flags or catenary wire(s) shall be erected between two or more items of Lighting Equipment unless the Lighting Equipment has been designed and manufactured specifically for that purpose or a Structural Engineers report has been submitted as above.
- Power supplies to such decorative fittings shall not be obtained from an adjacent building.
- Where remote power supplies are used to provide energy for the Seasonal Decorations, the decorations and any supply wiring shall be labelled with the location of the isolation point at regular and appropriate positions along the length of the wire.

4. **Other Fixtures and Attachments to Street Lighting Columns (Permanent or Temporary)**

- 4.1 Existing Lighting Equipment due to its design, construction or structural condition may not be structurally adequate to support the additional weight and wind loads imposed by the erection of a sign or other attachment such as hanging baskets and banners. A Structural Engineer may be engaged to establish the structural integrity of the columns and the cost of such investigation and testing will be recharged to those installing the attachments.
- 4.2 Lighting columns should not be used as an additional support of a sign requiring a second or additional post unless the lighting column has been specifically designed for this purpose. Experience has shown that the use of lighting columns in this manner can cause premature failure.
- 4.3 Street lighting columns shall not be used as supports for advertising signs of any kind, except where recognised organisations (ie Automobile Association or Royal Automobile Club) have been granted permission by the Highway Authority. When fixed such signs should not obscure the unit's maintenance number, hinder maintenance or affect the light output of the equipment.

- 4.4 No person shall remove or cause obstruction to a lighting access door or column identification number.
- 4.5 Only personnel authorised by the Lighting Engineer shall enter the base compartment and access equipment housed therein.

25. **Supply of Electricity from Public Lighting Equipment**

The provision of temporary supplies from public lighting equipment presents problems for the safety and security of both the public lighting equipment and the temporary installation and such connections will only be permitted where no satisfactory alternative, including portable generators, can be found.

The Body seeking supplies of this nature must obtain the consent of the Highway Authority and make appropriate arrangements with the Regional Electricity Company for the payment of the energy used.

The installation must be installed in accordance with the requirements of the Electricity at Work Regulations and BS7671: Requirements for Electrical Installations and final connections into the public lighting equipment must be executed by the Highway Authority. Under no circumstances are unauthorised persons allowed to access public lighting equipment.

26. **Private Off-Highway Lighting**

Private exterior lighting situated off the highway when not optically controlled or wrongly aimed can be a source of danger due to glare to users of the highway.

Light pollution of the night sky should be minimised and lighting of buildings should preferably be with down lighters and where floodlighting must be used then they shall be optically controlled and aimed such that there is no spillage of light from the building being lit.

In the case of security and sports stadia, the lighting of these should be to the illuminance levels recommended in the appropriate Design Guides. Light spillage should be restricted to prevent discomfort and annoyance to occupiers of adjacent buildings and dwellings.

Car park areas should be lit to the appropriate standards set out in BS5489: Part 9 and the luminaries incorporate such light control to produce downward light within the confines of the car park.

Advertising signs should be lit using the guidelines published in the second edition of the Institution of Lighting Engineers (IL) Technical Report No TR5 'Brightness of Illuminated Advertisements'.

27. **Passively Safe Posts and Lighting Columns**

- Passive Safety Risk Assessment-Non Highways Agency Roads

New Roads

1. All new roads above 50mph shall be designed to include passively safe street lighting columns and sign posts in accordance with the British/CEN standards EN12767 and reference shall be made to the County Surveyors, Transport for London research document SL04/07. The passive revolution should be considered.

Existing Roads

2. All existing roads shall follow a passive safe risk assessment as detailed below
 - Road speed 20mph, do not require Passively Safe Street Furniture
 - If above 20mph passively safe equipment should be considered based upon accident history and traffic flow.

- If less than 5000 AADT refer to TTD/1906
- If the road is lined with parked cars the use of passively safe equipment is unlikely to be required, however, confirmation of accident history with street furniture to be consulted.
- If geometry of road, road use and other factors effectively limits the speed to 25 mph or less it is unlikely that passively safe equipment is unlikely to be required.
- If equipment is behind existing **SRS** or sited directly in front of a solid or immovable object up to 500mm then the use of standard columns should be used as it would make passively safe equipment inoperable.
- If existing features that should be protected by a SRS are not, ensure that consultation and investigation is carried out in the **RRS** prior to installation of standard lighting columns.
- If no existing features require protecting use standard equipment located 4.5m clear of carriageway.
- If equipment cannot be sited 4.5m back from carriageway if there are any solid structures, eg poles, trees, bollards, embankments etc within this distance and there is a risk of impact the Highways Guidance 5.6.guidance on the **RRRAP** indicates columns spaced at less than 40m need to be treated as a continuous hazard. Therefore, solid hazards should be should be treated the same way. Passively safe equipment shall be used.
- If equipment is sited on a bend or in a high risk location passively safe equipment shall be used, if not standard columns should be used.

APPENDIX A: ENVIRONMENTAL ZONES

The Street Lighting Environmental Zones reflect the geography and population characteristics of the Borough.

The following table shows the approximate numbers of existing street lighting columns situated within the environmental zones

District	Parish	E1	E2	E3/E4

District	Parish	E1	E2	E3/E4

District	Parish	E1	E2	E3/E4
GRAND TOTAL		597	16,623	63,410

