Energy Solutions Ltd - Highway Lighting

acting for

Lighting for Staffordshire Limited

and

Staffordshire County Council

Street Lighting Design Policy
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**Note:** Whilst every care has been taken in developing this guidance document E.ON, Lighting for Staffordshire and Staffordshire County Council accept no liability for any loss or damage arising directly or indirectly, in connection with reliance on its contents except to the extent that such liability may not lawfully be excluded. Any enquiries should be submitted in writing to E.ON Sustainable Energy, Staffordshire PFI, 234 Victoria Road, Fenton, Stoke on Trent. ST4 2JA.
1. INTRODUCTION

1.1 This policy outlines the basic principles and standards applying to the provision of street lighting in Staffordshire. The definition of street lighting shall encompass all items of Lighting Equipment (see Appendix 1) provided on the public highway.

1.2 Following the award of a 25-year PFI contract in May 2003, to Lighting for Staffordshire Limited, the responsibility for approval of all new street lighting schemes for adoption is now carried out on behalf of the Council by Lighting for Staffordshire’s service provider, E.ON Energy Services. Accordingly, this document sets out the requirements of all new lighting installations to meet the standards required by the PFI contract and references to “Appointed Contractor” shall mean Lighting for Staffordshire Limited or their authorised agent, E.ON Energy Services.

1.3 All new developments, including alterations to the existing highway network, shall be provided with lighting. Where lighting is provided, it shall be in accordance with the requirements set out in this policy (SLP500), the Specification for Road Lighting and Lit Traffic Signs on New Developments (SLP501) and Highway Works Detail Drawings (SLP502). For the avoidance of doubt, the Appointed Contractor does not provide any general fitness for purpose warranty for compliance with these documents.

1.4 Unless specifically agreed otherwise, Staffordshire County Council will liaise with the Appointed Contractor for lighting scheme approval. For approval, correspondence, draft layouts and the like necessary to achieve this must be sent to Staffordshire County Council. At least 2 sets of the final lighting scheme layout drawings will be required together with all lighting and cable design calculation sheets, computer print-outs etc. demonstrating compliance with SPL500, SLP501 and SLP502.

1.5 Lighting scheme approval must be obtained in writing prior to commencement on site. Any alterations to the road layout, lighting column position or cable route that have in any way affected the approved design must be re-submitted for approval prior to construction as detailed in 1.4 above. It should also be noted that any alteration to the layout of the houses or properties, whether or not it affects the road layout and the resultant Lighting scheme, should also be re-submitted for approval prior to construction as detailed in 1.4 above.

1.6 Contact with the Appointed Contractor can be made in writing to:

E.ON Sustainable Energy
Staffordshire PFI
234 Victoria Road
Fenton
Stoke on Trent
ST4 2JA

1.7 Neither Staffordshire County Council nor the Appointed Contractor will be responsible for the equipment prior to formal adoption. Part of the approval for new developments will be the developer’s proposals for dealing with energy payments, maintenance, and repair, standby arrangements and contact details for the period from installation of the equipment to formal adoption.
2. **MAIN PRINCIPLES**

2.1 When considering the provision of street lighting regard shall be given to the following aims:

(a) Increased safety for all users of the highway with special consideration being given to vulnerable groups such as pedestrians, cyclists, elderly, disabled and children. The reduction of night time accidents is a principal aim.

(b) The convenience of all highway users and the enhancement of the night-time environment with special reference to lighting in sensitive areas (see Section 5.8).

(c) Increased personal security and the reduction of the fear of crime.

(d) Increased security to property including the deterrence of vandalism.

(e) The reduction of both night time and day-time environmental intrusion.

(f) The provision of cost effective lighting, which is energy efficient and takes account of whole-life costs.

(g) Choosing a design that is suitable for the context in question.

(h) Ultimate access and maintainability of the completed Lighting Scheme.
3. **LIGHTING PROVISION - SUMMARY**

3.1 In order to determine whether or not lighting should be provided or improved on a particular length of highway the County has been divided into the following categories.

<table>
<thead>
<tr>
<th>Roads in Countryside Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>All country roads, except residential and non-residential estate areas</td>
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</table>

<table>
<thead>
<tr>
<th>Roads in Urban Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cities, towns excluding residential areas.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Roads in Residential Areas</th>
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</thead>
<tbody>
<tr>
<td>Residential areas including those in rural areas</td>
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<th>Roads in Historic and Conservation Areas</th>
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<tr>
<td>Historic Urban areas</td>
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<tr>
<td>Historic Countryside areas</td>
</tr>
</tbody>
</table>

3.2 **Part Night Lighting**

The County Council will allow part night switched street lights when requested by a Parish Council as part of the localism agenda, when supported by the local community. For information; the County Council will not be imposing part night switched street lights on communities and will undertake a risk assessment of submitted requests.

3.2 **Dimming**

New lighting is to be fitted with dimming equipment which will lower the lighting levels when traffic flows are reduced or pedestrian activity is low. The level of dimming will be determined by the road category and also take into account any conflict areas and exclusions. Note; locations will not be dimmed which conform to a set criteria. See Appendix 4, 3.1

4. **LIGHTING PROVISION - GENERAL REQUIREMENTS**

4.1 All new systems of street lighting provided on an adopted or potentially adopted highway shall be designed in accordance with the requirements of the following documents:

   a. SLP 501: *Specification for Road Lighting and Lit Traffic Signs on New Developments*
   b. SLP 502: *Highway Works Detail Drawings.*
   c. The principal references and current regulations detailed in Appendix 1

4.2 The local Lighting Authority (see Appendix 1) may, at its own expense and with the prior agreement of the Highway Authority and the Appointed Contractor, provide Footway Lighting on an adopted Highway. Subject to the approval of the Appointed Contractor, the Highway Authority may adopt any such Footway Lighting for future energy and maintenance payments provided the equipment
meets the standards of design and installation contained in this document.

4.3 All new lighting shall be designed to minimise the effects of obtrusive light at night and to reduce its visual impact during daylight.

4.4 In general LED - Light Emitting Diodes and SON high-pressure sodium lamps (see Appendix 1) are the preferred light sources. The use of CosmoPolis lamps will be considered but permission will be dependent upon actual location. The use of any other lighting source must be agreed in writing with the Appointed Contractor prior to design submission.

4.5 All luminaires shall incorporate an optical system to direct the light onto the highway within the limits set by BS 4533.

4.6 Columns should be positioned at the rear of the footway or in an adjacent grass strip which has or will be adopted as part of the public highway. In any event positioning should where possible be a minimum of 1.5m and a maximum of 3.0m from the face of the kerb or edge of carriageway. Full supporting details of any deviations from these maximum and minimum distances including the planned maintenance access arrangements should be submitted as part of the Lighting scheme approvals process.

4.7 In conservation areas, or other areas with high pedestrian movements, the use of wall mounted fittings may be considered in special circumstances however Way-leave Agreements must be approved by the Appointed Contractor prior to final agreement and installation.

4.8 Particular note should be made of the requirements of Appendix 3 where columns are used for the support of decorations, festive lighting, etc.

4.9 Columns and sign posts should be proposed in locations where installation and future maintenance operations are considered and evidenced in accordance with CDM regulations.

4.10 Installations which are proposed to be installed in the vicinity of overhead power lines will require written confirmation from the respective operator; that adequate clearance distances will be achieved and maintained throughout installation, operation and maintenance and any subsequent need to remove or replace the asset. All documentation is to be submitted to the Appointed Contractor for approval prior to final installation.

5. SPECIFIC LIGHTING REQUIREMENTS

5.1 The lighting requirement for a particular road is determined from Table T1, T2 and T3 contained in Appendix 4. Generally, the lighting requirements will be determined by the highway maintenance category of the existing or proposed road and its location in either an urban or rural area along with any other interventions by conservation area or area of special interest.

Roads in Rural Areas

5.2 Rural areas are defined as those areas outside towns and cities but including villages. As a rule these areas are more precisely defined as being those areas within "the Countryside Policy Area Boundary" for development
purposes, as described in District and Local Plans. However, in small rural communities the County Council and the Appointed Contractor will take into account the comment and suggestions of the Local Lighting Authority as to the need and standard of lighting. The County Council as the Highway Authority will need to agree any proposals.

5.3 In general, street lighting should only be provided in Countryside areas where there is a need as a road safety measure or for personal security. Existing lighting in villages will normally be retained unless the Local Lighting Authority agrees otherwise.

5.4 Road safety benefits shall be assessed using a cost benefit analysis technique to quantify the anticipated reduction in night time accidents, by the installation of lighting. Additional guidelines are given within the DETR advice note TA 49/07.

5.5 Roundabouts and other major junctions are sites which often justify lighting because of accident problems however, an assessment in accordance with the above document should still be made to confirm the justification.

5.6 The provision of street lighting can improve the personal safety and security of highway users, particularly pedestrians. The main factors which should be considered whilst assessing the provision of lighting on personal safety grounds are:

- the volume of pedestrian traffic during the hours of darkness
- the proportion of pedestrians in vulnerable categories such as women, children, elderly and disabled
- the potential risk of the site such as a high personal crime rate
- secluded areas
- potentially dangerous locations due to uneven surfaces or other hazards

5.7 The Appointed Contractor and the County Council as the Highway Authority cannot provide lighting solely as a crime reduction measure. However, it is reasonable to take this risk into account when assessing the needs for lighting on other grounds or when the lighting is to be provided by others.

5.8 Where lighting is considered desirable for either road safety or personal security, then full consideration must be given to the environmental impact when designing any lighting proposal. There are certain areas in the countryside where environmental considerations may carry greater emphasis due to their sensitivity. These sensitive areas are defined under the following general headings:

- Peak District
- Cannock Chase
- Countryside Heritage Areas
- Environmentally Sensitive Areas
- Areas of Outstanding Natural Beauty
- Sites of Special Scientific Interest
- Listed and Registered Historic Parks and Gardens

5.9 There are other sensitive areas in the countryside where this approach should be adopted, e.g. the larger strategic gaps forming part of the urban fringe.
Where a justification to provide lighting is identified within such a sensitive area the lighting should be designed to minimise daytime impact by careful consideration of the height, type and number of columns. The night-time intrusion of the lighting can be reduced by the specifying cut-off lighting and providing the minimum levels of illumination required.

5.10 Street lighting should be considered, as an integral part of the design process of any new road schemes. However, in Countryside areas, alternatives to lighting, such as improved carriageway delineation using reflective studs, signing and lining, should also be considered.

5.11 An integrated approach should be used to develop proposals, which best balance safety and environmental considerations. If lighting has to be provided, a combination of the above measures with a reduced system of lighting may be more appropriate.

Roads in Urban Areas

5.12 Urban areas are defined as those areas contained within the boundaries of towns and cities including non-residential estates. Areas of special environmental interest within the urban area are considered separately under the category of historic and conservation areas.

5.13 In general all roads in urban areas will be provided with a system of street lighting as detailed under General Requirements above. In addition;

- Developments which extend the natural boundary of urban areas will require infill lighting to be installed at the Developers expense;
- For existing adopted carriageways the following Highways Agency Document; TA34/07 shall be used to ensure that there should not be an unlit gap of less than four times the stopping sight distance between lit sections
- For existing adopted footways and cycleways, infill lighting can be requested at the discretion of the Highway Authority

Roads in Residential Areas

5.14 Residential areas are defined as those areas contained within the boundaries of towns, cities and villages primarily serving residential properties. Areas of special environmental interest within the urban area are considered separately under the category of historic areas.

5.15 In general all roads in residential areas will be provided with a system of street lighting as detailed under General Requirements above.

5.16 Lighting on new residential developments shall be designed and installed in accordance with this Policy, the Specification for Road Lighting and Lit Traffic Signs on New Developments and the Highway Works Detail Drawings all as issued from time to time by the Appointed Contractor and any specific design brief where appropriate.

Roads in Historic and Conservation Areas

5.17 Historic areas are defined as follows:

- Statutory Conservation Areas, Scheduled Ancient Monuments, Listed and Registered Historic Parks and Gardens, Listed Buildings and
areas abutting their boundaries.
- Non-statutory historic or heritage areas and older urban renewal areas identified by the Local Planning authority.
- Other County Council sponsored initiatives, such as the regeneration of older urban areas and towns initiative programmes, which will be the subject of special treatment and funding. These will generally operate within the categories described above but some will have their own requirements.

5.18 Subject to ensuring the safety of the highway, the retention and enhancement of the architecture and the historic or landscape character of the area will take precedence in determining lighting requirements.

5.19 All areas have unique character and it is important that any lighting arrangements are tailored accordingly to enhance the area rather than being a standard form.

5.20 Lighting improvements should form an integral part of all environmental enhancement schemes.

5.21 In order to identify opportunities and constraints specific to the site under consideration, a detailed design brief shall be prepared by the Director of Place jointly in conjunction with the appropriate officers of the Local Planning Authority, the County Council's Conservation Officer and the Appointed Contractor.

5.22 The brief should, where appropriate, consider the views of interested outside bodies to ensure that environmental and lighting design solutions are achieved.

5.23 Evidence to prove full compliance to the agreed brief will be required before the Appointed Contractor adopts any lighting on behalf of the Highway Authority.

5.24 In view of the pressures upon financial resources and the cost of lighting provision and maintenance, the Appointed Contractor and the County Council will not rule out the adoption of lighting arrangements/schemes which represent an incremental step or improvement towards the desired standard, accepting that this standard might not be reached in the immediate or short term. Where the lighting provision is so significantly below the required level established in the Design Brief the County Council may elect not to adopt the works. The Local Lighting Authority may, at its discretion, accept continued and ongoing maintenance responsibilities.

5.25 Every opportunity should be taken for considering lighting arrangements in environmental enhancement schemes. Lighting of areas with a high activity level after dark, together with improving the perception of hazards, e.g. level changes, changes in direction and road crossings, should form an integral part of any proposals.

5.26 County and District Council enhancement programmes provide the opportunity for exploring the appropriateness of different lighting levels in a variety of historic areas. Every opportunity should be taken to improve lighting in such schemes.

General

5.27 Recommended minimum lighting levels are set out in Appendix 4, being based
on BS EN 13201: 2003, Parts 1 to 4. However, for the purposes of this policy, these should be regarded as target lighting levels. Lower levels may be permitted where a balance between environmental and safety consideration is appropriate and expressly agreed in writing.

5.28 The Highway Authority shall, with the knowledge and approval of the Appointed Contractor, issue a design brief to the developer that will set out the minimum lighting requirements for each aspect of the lighting scheme. Lighting designs submitted to the Highway Authority for approval will have to demonstrate compliance with the requirements of the design brief.

5.29 New or replacement lighting on traffic routes shall be of the high-pressure sodium type (SON) or LED where the Highway Authority deems appropriate. LED light sources (shall be used on residential roads to deliver an energy efficient lighting solution. CosmoPolis (CPO-TW) light sources may also be considered in certain situations and locations.

5.30 Areas of high pedestrian activity may however, benefit from a higher level of lighting than the general surroundings, e.g. adjacent areas of evening entertainment and late night takeaways, convenience stores or where there is a cluster of such establishments.

5.31 All new lighting in sensitive areas should be appropriate, particularly in relation to conservation or other historic areas in small towns or villages whose tradition lies in a quiet atmosphere and where stark, night illumination can create an entirely alien environmental quality.

5.32 Recent studies tend to indicate reductions in crimes against the person and property following improvements to the street lighting and an increased perception of feeling safer particular for women and the elderly. Therefore, such considerations shall be taken into account when formulating proposals.

5.33 The Appointed Contractor or the Highway Authority will consult with the Local Authority Conservation Officer and the Staffordshire County Council Conservation Officer to ensure that historical styling and/or location of equipment is correct. In special or particularly sensitive locations it may be advisable to arrange for digital photographic mock ups of the proposed installations to give an overall but specific artistic impression of the scheme.

5.34 In determining levels of illumination, lighting positions and styles, the Lighting Design Brief should consider pedestrian and vehicular uses/needs in relation to the following identified matters:

- Areas of activity, theatres, shops, school entrances, bus stops, libraries, highways, paths etc, and areas of conflict
- Listed buildings and historic qualities of the area
- Building heights
- Street features - crossing points, sitting areas, tree planting, traffic calming, materials/colours etc.
- Existing lighting - positions, styles, heights, lighting levels, lighting type, lighting from shops, floodlights, etc. In assessing appropriate levels of illumination the existing and ambient lighting e.g. from shops, floodlighting schemes, etc, shall be taken into account. Whilst, such lighting adds to the ambience of the area it should be recognised that the continued operation of ambient or privately owned lighting sources cannot be guaranteed for the life of the scheme.
• Uneven surfaces (important to the handicapped), hazards, etc.
• Local knowledge, incidence of vandalism, accident blackspots, etc.

5.35 Lighting as part of an effective transport infrastructure can reduce the need and desire to travel by car through encouraging the use of public transport, walking and cycling.

5.36 Conservation area status does not establish a pre-requisite for period style lighting - good functional modern designs may be more appropriate and suitable. However, the particular character of an historic area may demand an unconventional approach or a blend of various lighting sources.

5.37 The retention of existing columns/lanterns, where these are of local historical importance is desirable, particularly, where they form a feature of the locality, however, this shall be solely at the discretion of the Appointed Contractor and the County Council.

5.38 The restoration of existing cast-iron and ornamental columns or lanterns, which are of architectural merit, will be considered however the age, electrical and structural safety requirements and potential longevity must be considered paramount when deciding whether to reuse units. Any applications to re-use should be submitted in writing to the Appointed Contractor together with all supporting evidence and documentation prior to finalisation of the design proposal. The Appointed Contractor reserves the right to refuse such applications on an individual basis.

5.39 Where modern equipment cannot be accommodated within such columns, then measures to supply a carefully sited, separate free standing unit may be an acceptable alternative to the loss of such features, always provided that electrical and structural safety and isolation can be achieved. New lanterns for such existing columns must be appropriate to the period, style and capability of the column.

5.40 The floodlighting of landmarks and historic buildings or decorative fittings, which do not form part of the main lighting system and are installed or retained purely for decorative effect may not be adopted by the Appointed Contractor on behalf of the Highway Authority. In such circumstances the operation, maintenance and energy cost may become the responsibility of the local Lighting Authority by prior agreement. In any event, a scheme containing such equipment must be designed to ensure that electrical supplies and controls remain completely separate from the highway lighting services and supplies.

5.41 If "period style" lanterns are used, care should be taken to match historical periods, for which consultation with the Local Planning authority and Staffordshire County Council Conservation Officer is essential.

5.42 Where a modern style of fitting is proposed, this, together with its control gear must be recessive in design and colour and be sited so as to be "invisible" as far as possible during the daytime. This is of particular importance in areas where buildings are of diverse historical and architectural character. Such fittings should be simple and of appropriate shape, colour and scale to the architectural setting.

5.43 In special circumstances, and where deemed appropriate, consideration may be given to affix lanterns to buildings particularly where footways are narrow and
subject to high pedestrian traffic, however Way-leave Agreements must be approved by the Appointed Contractor prior to final agreement and installation. The associated work in achieving wayleave agreements and listed building consents for such fittings must be taken into account when programming schemes which include lighting improvements. Such work can require extended periods of six to eight months. The siting of fixings and all attendant equipment on buildings should be taken into account, as should the quality and elevation features of the individual buildings on which they are to be affixed. Consideration should be given when selecting suitable fixings that, in the event that the asset is permanently removed from the structure, there shall be no requirement for any structural remedial works or significant making good of finishes once removed.

5.44 Brackets can be of architectural interest in their own right. Restoration of such features may be considered however the age, structural safety requirements and potential longevity must be considered paramount when deciding whether to reuse units. Any applications to re-use should be submitted in writing to the Appointed Contractor together with all supporting evidence and documentation prior to finalisation of the design proposal. The Appointed Contractor reserves the right to refuse such applications on an individual basis.

Where new fittings require brackets, then fixings must take into account the nature and integrity of the building; more than two fixing points should be provided, especially for buildings with timber frame, lime mortar or soft brick construction.

5.45 Modern interpretations of historic brackets may be appropriate in order to satisfy the need for cable ducting and load bearing requirements. The colour, weight, and proportion of the bracket must be complementary to the lantern. Galvanised steel, primed and painted, should be used for new brackets, or other approved materials used, e.g. cast-iron.

5.46 The scale of mounting height must be appropriate to the scale of the setting in the street scene. As a general rule, fittings should not be mounted so as to be seen in silhouette against the sky in urban locations. Heights may need to vary to blend in with the scale of the surrounding area. In urban areas, a 5 metre minimum height clearance over footways is normally required, except under exceptional circumstances where an absolute minimum of 4m may be considered.

5.47 The proportion of light column to lantern for ornamental fittings must be carefully considered for optimum aesthetic appeal.

5.48 Lighting columns should be sited to avoid obstruction to the footway, particularly for the disabled. Wherever possible and practical, columns should be sited at the rear of footways and where possible be a minimum of 1.5m and a maximum of 3.0m from the face of the kerb or edge of carriageway.

5.49 Where columns are to be painted, details should be sought from the Appointed Contractor as to the preferred colour and finish requirements.
APPENDIX 1

LIST OF DEFINITIONS, REFERENCES AND REGULATIONS

DEFINITIONS

Highway Authority

In England and Wales means:

(a) in relation to a road for which he is the highway authority within the meaning of the Highways Act 1980, the Secretary of State, and
(b) in relation to any other road the council of a county, metropolitan district or London Borough or the Common Council of the City of London as the case may be.

For the purpose of this Policy the Highway Authority is Staffordshire County Council

Lighting Authority

A District, Town or Parish Councils who has adopted the powers of a Lighting Authority under the Parish Councils Act, 1957 to provide lighting on the highway. The prior approval of the Highway Authority must be obtained before any modifications or provision of additional lighting is carried out on an adopted highway.

Lighting Equipment

Lighting Equipment includes road lighting, footway lighting, internally lit traffic signs, traffic bollards and externally lit traffic signs, in which the lighting is an integral part of the sign.

SON Lamp - High Pressure Sodium discharge lamp (honey coloured light)
LED - Light Emitting Diode Lamp (white coloured light)
CPO-TW - Cosmopolis Lamp (white coloured light)
PL Lamp - Compact Fluorescent Lamp (white coloured light)
APPENDIX 1 (Continued)

PRINCIPAL REFERENCES, CURRENT REGULATIONS

- Health and Safety at Work Act, 1974
- Electricity at Work Regulations, 1989
- BS 7671: Requirements for Electrical Installations. IEE Wiring Regulations.
- British Standard BS EN 13201, Parts 1 to 4. Road Lighting.
- BS EN 60529: 1992, Specification for Degrees of Protection provided by Enclosures (IP Code)
- BS EN 40: Lighting Columns
- Department of Transport Departmental Standard BD 26/94 - Design of Lighting Columns
- Department of Transport Advice Note TA 49/07 - Appraisal of New and Replacement Lighting on Trunk Roads and Motorways
- Department of Transport Advice Note TA 34/07 - Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network
- Traffic Signs Regulations and General Directions
- Disabled Persons Act 1981
- The Disability Discrimination Act October 1995
- Road Hump Regulations 1990
- Construction (Design and Management) Regulation 2007
APPENDIX 2

ADOPTION OF NEW LIGHTING SYSTEMS

1. Section 38, 106 and 278 Adoption Procedures

1.1 Where the proposed Section 38 or 278 lies within the designated areas for lighting described in the street lighting policy document then street lighting and illuminated signs shall be provided as a specific part of any agreement.

1.2 The design and specification of the proposed lighting shall be in accordance with the specifications laid down in this document and the Staffordshire County Council Residential Design Guide, 2000.

2. Lighting Standards

2.1 For each development the standard of lighting shall be agreed by the Appointed Contractor in the directly maintained areas, but shall, other than in exceptional circumstances, be in accordance with the British Standard BS EN 13201 Parts 1 to 4 or any subsequent British Standard or European Norm as may be introduced from time to time. Account shall be taken of the energy efficiency of equipment and overall lighting design proposed.

3. Lighting Equipment Inventory

3.1 Full details of installed apparatus shall be provided upon completion to enable The Appointed Contractor to ensure that lighting systems adopted on behalf of the Highway Authority is added to the inventory at the earliest opportunity.

4. Consultation with Local Lighting Authority

4.1 The local Lighting Authority shall be consulted over the provision of all new street lighting systems by the proposer of the scheme. The standard of lighting installed shall fully comply with the requirements of this document. Any lighting system installed below the standard specified in this document will become the responsibility of the local Lighting Authority for operation, maintenance and energy.
APPENDIX 3

SEASONAL DECORATIONS ON OR ABOVE THE HIGHWAY

1. General

1.1 Where it is proposed or envisaged that any street lighting column will or may be considered for future use in the mounting of seasonal decorations, the design and selection of a column capable of supporting such decorations must be undertaken. All design calculations and supporting data undertaken for this purpose should be provided to the Highway Authority and Appointed Contractor as part of the final handover documentation.

1.2 The erection of seasonal decorations which are proposed to be attached to or derive a power supply from and street lighting asset shall only be carried out with the prior written approval of the Highway Authority and shall be carried out in accordance with the ILP document PLG06 Guidance on Installation and Maintenance or Seasonal Decorations and Lighting Column Attachments and SLP520 Requirements for the attachment of temporary Seasonal Decorations and/or the connection of electrical power supplies from highway lighting equipment.

1.3 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
APPENDIX 4

SELECTION OF THE LIGHTING LEVEL TO BE PROVIDED ON A PUBLIC HIGHWAY

1. General

1.3 The following details provide an aid to the selection of the correct level of lighting to be provided on an adopted highway. However, the actual level of lighting shall be determined by the methods shown in BS EN 13201: 1998, Part 1, Selection of Lighting Classes.

Table T1 – Traffic Groups

<table>
<thead>
<tr>
<th>Environmental Zones E4, E3, E2 and E1</th>
<th>Traffic Group</th>
<th>Definition</th>
<th>Average Daily Traffic (ADT)</th>
<th>MPH of road</th>
<th>Lighting Class</th>
<th>Conflict Area</th>
<th>Max Height (M)</th>
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<tbody>
<tr>
<td>1 Major &quot;A&quot; class road</td>
<td>ADT ≥25,000</td>
<td>≥40</td>
<td>ME2</td>
<td>CE1</td>
<td>12</td>
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<tr>
<td></td>
<td>&lt;40</td>
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<td>CE2</td>
<td>12</td>
<td></td>
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<tr>
<td>2 Roads on the Primary route network</td>
<td>ADT &lt;25,000 - ≥15,000</td>
<td>≥40</td>
<td>ME3b</td>
<td>CE2</td>
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<td></td>
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<td></td>
<td>&lt;40</td>
<td>ME3c</td>
<td>CE2</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Lesser used &quot;A&quot; class</td>
<td>ADT &lt;15,000 - ≥7,000</td>
<td>≥40</td>
<td>ME3c</td>
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<td></td>
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<td>ME5</td>
<td>CE4</td>
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<tr>
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<td>A and B roads</td>
<td>ADT &lt;7,000</td>
<td>≥40</td>
<td>ME4b</td>
<td>CE3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C roads</td>
<td></td>
<td>ME5</td>
<td>CE4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Unclassified</td>
<td></td>
<td>S3</td>
<td>CE4w</td>
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<td></td>
</tr>
<tr>
<td>5 Housing estate and Industrial roads</td>
<td></td>
<td></td>
<td>S3</td>
<td>CE4w</td>
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</tr>
<tr>
<td>6 Housing estate roads and cul de sac</td>
<td></td>
<td></td>
<td>S4</td>
<td>CE5w</td>
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</tr>
<tr>
<td>7 Rear access on housing estates</td>
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<td></td>
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<td>S4</td>
<td>6</td>
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<td>8 Environmental Zone E3</td>
<td>A and B roads</td>
<td>ADT &lt;7,000</td>
<td>≥40</td>
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<td>CE3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>C roads</td>
<td></td>
<td>ME5</td>
<td>CE4</td>
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<td>6 Housing estate roads and cul de sac</td>
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<td>CE5w</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7 Rear access on housing estates</td>
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<td>S4</td>
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<tr>
<td>9 Environmental Zone E2</td>
<td>A and B roads</td>
<td>ADT &lt;7,000</td>
<td>≥40</td>
<td>ME4b</td>
<td>CE3</td>
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</tr>
<tr>
<td></td>
<td>C roads</td>
<td>Unclassified</td>
<td>Housing estate and Industrial roads</td>
<td>Housing estate roads and cul de sac</td>
<td>Rear access on housing estates</td>
<td></td>
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<tr>
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<td>S5</td>
<td>S5</td>
<td>S6</td>
<td>S7</td>
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<tr>
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<td>S4</td>
<td>S5</td>
<td>S5</td>
<td>S6</td>
<td>S7</td>
<td></td>
<td></td>
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<tr>
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<td>S4</td>
<td>S5</td>
<td>S5</td>
<td>S6</td>
<td>S7</td>
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</table>

**Environmental Zone E1**

<table>
<thead>
<tr>
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<th>A and B roads</th>
<th>ADT &lt;7,000</th>
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<td>S4</td>
<td>S5</td>
<td>CE5w</td>
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<td>S6</td>
<td>S6</td>
<td>S7</td>
<td>CE5w</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>S7</td>
<td>S7</td>
<td>S7</td>
<td>S4</td>
<td>5</td>
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</tbody>
</table>

**All E Zones**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City and town centre mixed vehicular and pedestrian areas</td>
<td>CE1</td>
</tr>
<tr>
<td>City and town centre wholly pedestrian areas</td>
<td>CE2</td>
</tr>
<tr>
<td>City and town centre pedestrian subways</td>
<td>CE0</td>
</tr>
<tr>
<td>Residential and traffic route pedestrian subways</td>
<td>CE2</td>
</tr>
</tbody>
</table>

Note: S class and w = white light
### Table T2 – Footway and Cycleway Groups

<table>
<thead>
<tr>
<th>Footway /Cycleway Group</th>
<th>Definition</th>
<th>Minimum Lighting Requirements</th>
<th>Max. Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>E4</td>
<td>E3</td>
</tr>
<tr>
<td>1</td>
<td>Very heavily used footways or cycleways, e.g. in town centre, pedestrian precincts, near very large schools, factories and offices.</td>
<td>S1</td>
<td>S2</td>
</tr>
<tr>
<td>2</td>
<td>Heavily used footways or cycleways, e.g. small shopping parade, near schools, factories and offices not included in Footway/Cycleway Group 1.</td>
<td>S2</td>
<td>S3</td>
</tr>
<tr>
<td>3</td>
<td>Frequently used footways or cycleways, e.g. in residential areas and villages or fronting houses in rural areas.</td>
<td>N/A</td>
<td>S4</td>
</tr>
<tr>
<td>4</td>
<td>Other footways or cycleways, i.e. little used rural.</td>
<td>N/A</td>
<td>S5</td>
</tr>
</tbody>
</table>

Note 1: The lighting requirements in Table T1 and Table T2 are described in the BS5489 and CEN 13201: 2003, Part 1, Part 2 Part 3 and part 4 and are the minimum required for a specific traffic group, footway or cycleway.

Note 3: Areas of Environmental Zones are identified as

<table>
<thead>
<tr>
<th>Environmental Zones</th>
<th>Surrounding</th>
<th>Lighting Environment</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>E4:</td>
<td>Urban</td>
<td>High District Brightness</td>
<td>Town Centre or commercial areas</td>
</tr>
<tr>
<td>E3:</td>
<td>Suburban</td>
<td>Medium District Brightness</td>
<td>Industrial or Residential suburbs</td>
</tr>
<tr>
<td>E2:</td>
<td>Rural</td>
<td>Low District Brightness</td>
<td>Industrial or Residential rural areas</td>
</tr>
<tr>
<td>E1:</td>
<td>Natural</td>
<td>Intrinsically Dark</td>
<td>National Parks or Protected Sites</td>
</tr>
</tbody>
</table>


APPENDIX 4 (Continued)

Table T3 – Colour Rendering Index

<table>
<thead>
<tr>
<th>Traffic Group or Footway / Cycleway Group</th>
<th>Areas</th>
<th>Colour Rendering Index for non-Dimmed state</th>
</tr>
</thead>
<tbody>
<tr>
<td>01, 02, 03</td>
<td>General traffic Routes</td>
<td>Ra ≥ 25 and a colour temperature of between 1950 and 2100°K. For S class lighting, light sources with a Ra ≥ 80 (Cosmopolis Ra ≥ 65) and a colour temperature of &lt;3000°K, LED colour temperature range 3500°K – 4500°K (cool white) are to be used.</td>
</tr>
<tr>
<td>04, 05, 06</td>
<td>Residential areas</td>
<td>Ra ≥ 25 and a colour temperature of between 1950 and 2100°K. For S class lighting, light sources with a Ra ≥ 80 (Cosmopolis Ra ≥ 65) and a colour temperature of &lt;3000°K, LED colour temperature range 3500°K – 4500°K (cool white) are to be used.</td>
</tr>
<tr>
<td>1, 2, 3, 4</td>
<td>Footways and Cycleways</td>
<td>Ra ≥ 25 and a colour temperature of between 1950 and 2100°K. For S class lighting, light sources with a Ra ≥ 80 (Cosmopolis Ra ≥ 65) and a colour temperature of &lt;3000°K, LED colour temperature range 3500°K – 4500°K (cool white) are to be used.</td>
</tr>
<tr>
<td>Conservation areas, city and town centres, pedestrian subways and other specifically designated areas of special consideration</td>
<td></td>
<td>Ra ≥ 65 and a colour temperature of &lt;3000°K, LED colour temperature range 3500°K – 4500°K (cool white)</td>
</tr>
</tbody>
</table>

2. Highway Network Hierarchy

2.1 The routes, which form the Highway Network, have different roles depending on levels of traffic flow and their relative importance as communication links. A Road Hierarchy has been defined, which classifies each link in the Highway Network according to its function.

2.2 The Hierarchy will be formally reviewed at regular intervals to take into account changes in the road network and traffic patterns. However, interim changes will be made where new construction or re-classification has taken place, or when changes in traffic flows or developments make it appropriate.

3.0 Other requirements

3.1 Dimming Times and by Percentage (%) light output.

For Traffic Groups 1, 2 and 3
The level of Dimming between the hours of 20:00 and 06:00 shall be to 50% of Maximum Light Output. For Conflict areas and exclusions, the level of dimming between the hours of 00:00 and 06:00 shall be to 75% of Maximum Light Output.
For Traffic Groups 4, 5, 6 and 7
- The level of Dimming between the hours of 20:00 and 00:00 shall to be to 75% of Maximum Light Output and from 00:00 and 06:00 shall be to 50% of Maximum Light Output

For Conflict areas and Exclusions the level of Dimming between the hours of 00:00 and 06:00 shall be to 75% of Maximum Light Output

Note; Maintained Ra rating is not applicable during Dimmed times

Exclusions;
- Roads with traffic calming measures, humps and speed tables
- Vicinity of controlled pedestrian crossings
- Traffic Signalled controlled junctions
- Adjacent to central carriageway islands
- Bus stops
- Local amenities (a group of two or more late night-opening local amenities (including convenience stores, fast food outlets, pharmacies and similar retail enterprises) which do not offer off-street parking facilities)

Note the following locations are not to be subject to dimming;
- City and Town Centre locations
- Pedestrian subways.
- Areas covered by permanent Local Authority/Police CCTV cameras (excluding those used for traffic monitoring) for a distance of 150m from the camera.
- Areas adjacent to 24 hour operational emergency services
- Areas adjacent to Pedestrian commuter locations; Railway Stations, Bus Stations, Taxi ranks

a. Conflict Areas shall be Lit to the standards set out in Table T1.

b. "Conflict Areas" means any of:
   i) road junctions where any of the roads are in Traffic Groups 01, 02, and 03 of Table T1 where they intersect with each other;
   ii) complex road junctions;
   iii) an uncontrolled Zebra pedestrian crossing;
   iv) at the location of physical traffic calming features which require a motorist to deviate from a straight ahead path such as build outs, chicanes etc;
   v) roundabouts and mini roundabouts;
   vi) the entrance of hospitals with Accident and Emergency facility to a maximum of 100 metres;

3.2 Conservation areas and other special interest areas shall be lit to the appropriate lighting class for the particular traffic group, footway or cycleway as set out in Tables T1 and T2.

3.3 Disability Glare and Threshold Increment (TI) (both as defined in BS EN 13201:1998) shall not exceed 15% for all urban traffic groups, footway and cycleway groups or a maximum of 10% for rural traffic groups, footway and cycleway groups.

For any S series lighting class the average illuminance (Eav) on the road surface between any two adjacent lighting units with the minimum spacing in any New Lighting System or Renewed Lighting System shall not exceed 1.5
times the minimum maintained average illuminance of the lighting class.

3.4 Except where a cycleway forms part of the adjacent highway or footway infrastructure, separate lighting should be provided in all urban and suburban locations. The level of lighting for cycleways shall be as for corresponding footway categories defined in Table 2.