Kent County Council

Street lighting Strategy for Kent

Street Lighting Strategy for Kent

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Forward

I am pleased to present this strategy document which covers all aspects of street lighting in Kent.

Over the years, the highway service in Kent has invested a great deal of time and money into priorities such as road and pavement resurfacing and providing new improvement schemes. Street lighting has always been maintained well but has not had the investment and guiding policies that enable us to ensure it performs to the best of its ability

Since 2005, Kent County Council have provided a comprehensive highway service in Kent and during a restructuring in April 2008, a single street lighting group has been established which works in partnership with our long term alliance partners to deliver this service.

Over 20% of the calls to the Highways Contact Centre are related to street lighting, which shows how important it is to the general public, which proves that we must deliver an effective maintenance service.

I am committed to reducing the amount of energy used in street lighting and will pursue all possible ways to do this. Any change to street light regimes will only be enacted following appropriate consultation with the emergency services and representatives of the local community.

I am also committed to reducing the carbon footprint of this part of our service. We currently use a great deal of electricity to light our streets some of which is not as efficient as it could be, therefore needlessly increasing our carbon footprint. I am looking at many ways to reduce this for the benefit of our current and future generations.

Nick Chard – Cabinet Member for Environment, Highways and Waste

1.0 INTRODUCTION

Street lighting forms a highly visible and vital part of the streetscape. Lighting is provided to enable safe use of the highway for road users and pedestrians and also helps to promote strong and safe communities.

Lighting can also be a key element in successful regeneration projects and can provide an area with a strong visual identity.

However, lighting also consumes a great deal of energy and therefore contributes to carbon emissions. Street lighting is also a contributor to light pollution.

This document strikes a balance between the need to reduce the environmental impact of street lighting and the need to provide lighting for the safe use of the highway and for the community in general.

This policy outlines the basic principles and standards applying to street lighting in Kent. The term street lighting encompasses lighting and all other items of illuminated street furniture (such as lit bollards and lit signs) provided on the public highway. Other lighting exists on the public highway that belongs to District, Town or Parish Councils and the Highways Agency, which this document does not cover.

There are consistently high levels of investment in research and development in the lighting industry, and street lighting is no different. Emerging technology, including LED lighting, is attempting to reduce energy consumption and improve lighting output and colour. It is important the KCC continues to be part of technological advances while proving efficiency and value for money.

2.0 Policy and Strategy

The Street lighting strategy and policies have been developed to maintain and deliver a quality service for the residents of Kent and road users, additionally this strategy will promote the reduction of CO_2 emissions associated with this asset. It also supports the aims and objectives of other Kent County Council (KCC) strategies and initiatives.

2.1 Legislative Powers

Where street lighting is provided KCC is under a duty of care to ensure that it is maintained in accordance with all its legal obligations and that it adheres to professional guidance and good industry practice.

KCC is required to maintain any street lighting it does provide in a safe condition for the benefit of the community it serves.

On the 1 April 1967, under the provisions of the Local Government Act 1966, KCC assumed responsibility for the maintenance and operation of highway lighting throughout the County generally, including the provision of new installations.

District Councils also have the power to provide lighting as local lighting authority under the powers of the Public Health Act 1985.

Where District, Town or Parish Councils wish to provide lighting on a highway the consent of KCC, as Highway Authority, is required.

The Highways Agency is the Highway Authority for road lighting on Trunk Roads and motorways, and will have its own policies and practices for the maintenance of those installations.

2.2 Vision for Kent

KCC's community strategy, The Vision for Kent, details how the Council will improve the economic, environmental and social wellbeing of the county of Kent over the next 20 years.

Street lighting plays a vital part in supporting the aims of this vision by helping to provide safer communities, supporting regeneration, helping to keep Kent moving and being a key factor in improving the environment.

2.3 KCC Strategic Plan(s)

Street lighting is a component in a number of current strategic plans as it is a key element of both highway and community safety.

2.4 The Local Transport Plan

The local Transport Plan (LTP) sets out our strategies, targets and spending programmes for transport for the five years from 2006/7 to 2010/11. It is a means of helping to deliver wider aims like strengthening the economy or tackling social deprivation.

Street Lighting is an integral part of the LTP with appropriate, well maintained lighting impacting on many of the aims and objectives of the LTP, for example:-
"Reducing road casualties through local safety schemes …"

"…ensuring the improvement of opportunities for walking, cycling and the use of high quality public transport."

"Where possible and appropriate, community safety lighting schemes are incorporated into schemes, particularly to provide illumination at bus stops and on walking routes to and from them"

2.5 Kent Highway Service Asset Management Plan

This strategic document should be read in conjunction with the Highway Asset Management Plan.

2.6 Kent Design

KCC ensures quality residential and industrial development through its local planning guidance, Kent Design. Street lighting is a key element in developments, both for safety and aesthetics.

2.7 Street lighting Policy

Kent's street lighting policy is grouped into the following categories

- Energy and Carbon Emissions
- Maintenance
- Efficiency and Cost Reductions

The policies are detailed in the following pages. The guiding principles of each category is

Energy and Carbon Emissions

KCC is committed to the reduction of energy consumption and CO_2 emissions from street lighting. This can be achieved by replacing aging lights with modern, efficient lighting which consumes less energy and also reduces 'light spill'.

By assessing existing lit streets KCC will consider if de-illumination, part night lighting, light dimming or switch off and removal of certain lights is appropriate. On all new developments KCC will offer advice to the planning authorities as to whether the areas to be adopted require lighting. If lighting is deemed to be required, lighting classes will be specified, together with switching criteria which may include dimming and part night lighting.

Maintenance

KCC is committed to maintenance in accordance with the principles set out in 'Well-lit Highways – Code of Practice for Highway Lighting Management' and Institution of Lighting Engineers Technical Reports and good industry practice.

KCC is committed to assessing faults and visiting defects, with the intention of affecting a permanent repair, within 28 days of the fault being reported. It is always the priority to repair faults on the first visit, however if specialist parts are needed or the electricity supply is faulty this may not be possible.

Efficiency and Cost Reductions

By collecting and updating information about all lighting in the County, maintenance priorities and efficient repairs can be undertaken.

2.7.1 Energy and Carbon Emissions

KCC's policies regarding energy and carbon emissions are detailed below.

> *SL P1 - When installing new or when replacing existing units, energy efficient, low wattage 'white' lighting will be used. In specific locations 'white' light may not be appropriate, in these instances other energy efficient lighting will be used*.

KCC has chosen to use a small selection of lamps and lanterns to achieve this objective. Street lights in Kent can vary in their wattage from 18W to 400W; older equipment tends to have less light output for higher wattage and therefore energy consumption is higher. Older units also tend to have differing colour appearance and poorer colour definition (rendering) compared to natural daylight and are often orange in appearance. By using white light, streets appear brighter and more welcoming whilst consuming less energy.

> *SL P2 – Newly lit streets or streets that are benefiting from replacement lighting will be designed to use the minimum amount of units or minimum energy consumption and will be assessed to consider if de-illumination; part night lighting, light dimming or switch off and removal of certain units is appropriate. These options will only be carried out after full consultation with the emergency services and local representatives of the community.*

> *SL P3 – All streets in the County that are currently lit will be assessed and will be given a 'lighting category' from the British Standard for Street Lighting Design. Based on this category and other factors such as local amenities, night-time activity, traffic flows and crime levels, KCC will assess whether the same lighting level is required for the street all night and consider if de-illumination; part night lighting; light dimming or switch off and removal of certain units is appropriate.*

It is important to light streets for the safety of the highway user and for community safety, however most streets are lit all night, irrespective of the need. By assessing each street within Kent, certain low risk streets may be able to have lighting levels reduced for certain periods of the night. This assessment would be based on traffic speed and traffic volume, crime statistics, community safety, understanding of local needs and other issues (e.g. late night businesses, hospitals, doctor's surgeries etc)

SL P4 – All lit signs will be assessed to current standards and replaced with non illuminated signs where appropriate. All signs that remain lit will be lit during the hours of darkness only, using low energy units. Where accessibility for maintenance is difficult or expensive, long life lamps will be considered.

Lit signs are regulated under the Traffic Signs Regulations and General Directions 2002. In 2002 the regulations were updated and took account of technological advances that meant highly reflective traffic signs could be used in place of previously lit signs. Many lit signs have been replaced since the change in the regulations; however further conversion work may be appropriate.

SL P5 – All lit bollards will be assessed and will be replaced with high-reflectivity, non-illuminated bollards where appropriate. All bollards that remain lit will be lit during the hours of darkness only, using low energy units. Where accessibility for maintenance is difficult or expensive, long life lamps will be considered.

Lit bollards are placed at most lit junctions, including roundabouts and traffic signal junctions, they are also placed at island in the carriageway, especially highlighting right-turn-lanes or crossing points. In 2001 the Department for Transport approved the use of high reflectivity, unlit bollards in place of lit bollards in certain circumstances. The replacement of these lit bollards ensures that no energy is used and has the added benefit of being less susceptible to vandalism and damage from traffic. Since the 2001 it has been the practice of KCC to remove illuminated bollards and replace them with high reflectivity, unlit bollards where appropriate.

SL P6 – All 'mercury' type units have been replaced with efficient low energy units (6300 units) during 2009-10

In the 1950's, the mercury vapour lamp was installed as the best light source available for street lighting but has been superseded in intervening years by more efficient and lower energy lighting. Mercury lamps are now recognised as environmentally unfriendly due to the high mercury content and are a cost burden for local authorities because of both high energy usage and high CO_2 emissions. Kent has some 6300 mercury lamps and by March 2015 it is unlikely that it will be possible to purchase replacement lamps. By acting pro-actively and removing these, replacing them with modern lamps and lanterns

it is anticipated to save energy in the region of 80 tonnes CO_2 and 1.9Mw hours per annum.

2.7.2 Maintenance

SL P7 – All reported faults will be assessed and visited with the intention of affecting a permanent repair within 28 working days (a permanent repair may not be possible on the first visit due to the need for specialist parts or because of electricity supply faults). If the unit is unlit because of an electrical supply fault the electricity supply company will be notified.

Faults are reported to KCC via the contact centre, direct calls to the street lighting team, calls from council members, reports from the night patrol, or online reporting via the KCC website. This allows all faults to be assessed, prioritised and programmed.

SL P8 – As appropriate, lamps will be bulk changed on a cyclical basis to ensure efficiency of maintenance and certainty of lighting

Bulk, lamp changes ensure that lights continue to operate with the expected output and the likelihood of the light being out is reduced. It is the most economic way of reducing faults and can effectively reduce CO_2 emissions from maintenance vehicle by using a planned approach to travel on the highway.

SL P9 – The selection of new or replacement apparatus will take account of whole life cost, including repair, vandal resistance, energy consumption, other lighting styles in the vicinity and ongoing maintenance. Minimising environmental impact such as sky glow will also be a consideration.

The type of lamp, lantern, switching device and column is important in order to ensure value for money over the lifetime of the installation and ensure that ongoing maintenance is kept to a minimum.

SL P10 – All lit units and private cable installations will be the subject of an electrical test every 6 years in accordance with BS7671.

The British Standard requires that all lighting units are tested for electrical compliance every 6 years. This is to ensure that safety remains an absolute priority for all electrical apparatus on the highway.

SL P11 – Structural testing of lighting columns will be carried out as recommended by the Institution of Lighting Engineers Technical Report No22, and 'Well-lit Highways – Code of Practice for Highway Lighting Management'.

Structural testing ensures that columns and brackets are kept in a sound condition and that any potential failures are identified. This allows for efficient scheduling of a replacement programme to be implemented.

2.7.3 Efficiency and Cost Reductions

SL P12 – The cost of energy for street lighting will be assessed and paid based on half-hourly meter readings.

To achieve effective half hourly metering, light levels are assessed by Photo Electric Control Unit (PECU) array, which is based in the Maidstone area. The PECU array has a selection of photocells (the piece of equipment that is in street lights to determine whether it is switched on or off) and records every half an hour throughout the day, when, in theory, the lights across the county are on or off. This data is used to assess the length of time a light has been on, and therefore how much energy has been used each month. A monthly invoice is then produced by the energy supplier which reflects this usage.

SL P13 – The inventory of the Kent lighting stock will be completely reviewed by the end of June 2010 and continuously maintained to ensure unmetered electricity payments are correct, maintenance regimes can be planned accurately and future Reductions can be targeted.

The inventory is vital to ensure that maintenance is targeted to ensure that the asset remains safe and is maintained as efficiently as possible. Information on maintenance history is also used to target future planned programmes which can reduce CO_2 emissions and maintenance costs. The inventory is also the fundamental basis for energy payments as the energy supplier use aspects of the inventory (e.g. lamp and control gear wattage, switching device) to assess energy consumption and cost.

SL P14 – All redundant equipment will be assessed for potential reuse where appropriate, recycled or disposed in accordance with current waste disposal standards.

Due to the age of the street lighting stock, the potential for reuse of equipment is limited, however there may be some items that this will be appropriate to. The safe disposal of equipment is vital due to the possible presence of hazardous materials.

SL P15 – New technological developments and methods of working will be assessed and implemented if they are deemed appropriate and will ensure a sustainable lighting service

The investment in research and development in the lighting industry is quite extensive and new technology is developing more rapidly than at any other time. As new equipment to achieve lower carbon emission, energy reductions, improved lighting standards or better colour rendering is developed it will be assessed and if it is appropriate for Kent its use will be implemented.

3.0 Information about Kent's Highway Lighting

In 2007, the lighting on Kent's roads consisted of approximately:-

- 113,000 street lights
- 14,000 lit signs
- 5,500 lit bollards

As with all assets of this size, these figures will change as investment and policy decisions are implemented. In Kent, there is a growth of approximately 1% in lighting each year due to new housing and industrial developments. However with changes to policies and standards, the amount of street lights, lit bollards and signs will significantly reduce in the coming years.

3.1 Asset Inventory

The need to have and maintain an accurate inventory of lighting units is imperative to ensure high standards of maintenance efficiency, replacement of life expired equipment and ensure that investment is targeted to the areas of highest priority and those which will achieve greatest impact.

Well-lit Highways, a Code of Practice for Highway Lighting Management, published by the UK Lighting Board States that:-

> *'…All authorities should develop and operate detailed asset management systems of their public lighting stock, to assist in the effective maintenance management of the assets in accordance with the authority's defined maintenance strategy, to enable appropriate risk assessment strategies to be formulated, and to facilitate the purchase of electricity for unmetered equipment. Fault and repair histories, together with the results of inspections and electrical and structural testing, should be included to allow the monitoring of the condition of the lighting stock and to determine future asset replacement programmes…'*

The existing inventory is being revamped to include a Global Information System (GIS) mapping layout, this comprehensive system will allow for greater interrogation of the database and allow the asset to be maintained more efficiently.

It is vital that this inventory is continuously updated with all new, replacement and removed lighting units and that all maintenance activities are recorded as accurate and as soon as possible after the event.

A periodic audit of the inventory will be undertaken.

4.0 Investment / Development Strategy

In order to determine where it is best to target future investment to reduce energy consumption, CO_2 emissions and provide and efficient maintenance service, it is vital to have an understanding of where the strategy will take KCC in the next 15 years.

In addition to a robust asset inventory, it is important to understand how each street within the county should be treated in terms of lighting. Street lighting can be an emotive issue and it is vital that a robust and justifiable method is applied to substantiate a particular approach to a particular street.

To understand where to target investment, it is important to understand firstly whether lighting should be provided or not; whether part night lighting or part night dimming can be installed or if lighting can be removed from existing streets.

In Kent, we have an adopted road and pavement hierarchy, based on need and usage. By applying standard criteria to these different classes of road and pavement in either built up or non-built up areas, a general assessment of lighting need can be made. Appendix B details the general approach to provision of lighting based on these categories. Appendix C explains the road and pavement hierarchy in more detail.

Once the general standard of lighting is applied to all streets, a lighting category is applied to those streets that are lit to obtain a lighting class. This will be based on criteria set out in the British Standard for lighting which depend on factors such as traffic volumes, traffic speed, crime statistics and night time activity.

These standards are applied to all streets in Kent and when assessed against the asset inventory a detailed the investment and development strategy can be created and calculations can be carried out to assess whole life costing and energy savings for different investment levels.

5.0 Energy Purchasing and Consumption

5.1 Energy Purchasing

The street lighting stock in Kent requires some 55GW of electricity per year. The management of the use and the mechanism of purchasing the electricity is undertaken by the highway authority to ensure efficiency and value are obtained.

5.1.1 Purchasing Mechanism

Energy is purchased by Kent County Council on the open market. KCC has established a company that purchases electricity on the open market for some 33 local authorities in the South East. Energy is purchased when the market conditions are favourable and this ensures the best value at all times.

5.1.2 Unmetered Payment

Electricity is usually supplied to street lighting equipment without it going through an electricity meter. This is because it is impractical to install a meter in every item of equipment and it would be impractical for the supply company to read each meter. Where metered supplies exist, these are read and charged in a similar way to a domestic supply.

The method of paying for the energy used in unmetered equipment is based on the asset inventory and the details that is contains regarding the number of lights, their wattage and the length of time that they are intended to be working. This requires the inventory to be maintained and agreed with the electricity supply company on a frequent basis.

5.1.3 Half Hour Metering

Until late 2008, the unmetered payments described in 5.1.2 were based on a set ‘switch on/switch off’ time, which was detailed in the asset inventory. This lead to inaccurate charging as it was not a true representation of when the light was on or off.

To overcome this, light levels are measured at a central point, in Maidstone, every half an hour and a calculation is made to assess how much energy has been used by the street lights around the County. This ensures more accurate reflection of energy use for the street lights.

5.2 Energy Consumption

Although energy is paid based on the asset inventory, the actual energy consumption and therefore carbon emissions are used whenever the photocells or time clock switches a light on. It is vital that we reduce the amount of energy used, which can be achieved in a number of ways, but only following consultation. Each location chosen will be individually assessed and a robust business case developed.

5.2.1 Clipping

Clipping is when the control that turns a light on and off is set to be as close to dusk and dawn as possible. By reducing the amount of time that each light is lit for each night by just a few minutes is can save up to 28Kw/h per light per year, which equates to some 2.4% of burning hours.

5.2.2 Dimming

Lighting levels are determined via criteria laid down in the British Standard and are determined by traffic flow, crime levels and night time activity. In many streets it may be appropriate to dim the lights to a predetermined level once the rush hour is over, or the pubs have closed. Dimming may therefore be appropriate after 8pm in some roads and midnight in others. Once in dimmed mode a street light can reduce its power consumption and CO_2 emissions by 47%.

5.2.3 Part night lighting

Where traffic and pedestrian flows are extremely low, for example on some industrial estates late at night, it may be appropriate to turn those street lights off at midnight. They would then be switched back on again in time for the morning rush hour.

5.2.4 Switch off and removal of columns

In some streets it may be inappropriate that a road is lit and in these locations after a specific assessment has been carried out, it may be appropriate to switch off the street lighting and remove the columns.

6.0 Maintenance Standards – Guiding Principles

6.1 Monitoring and Patrolling

High quality, reliable night patrolling is vital to ensure the consistency of lighting levels and that all faults are known, without total reliance on the public reporting faults.

The night patrol is also a safety inspection specifically for the lighting on the highway, and supplements the safety inspections carried out by the Councils Highway Inspectors. In addition to detecting lights that are not working, patrolling is undertaken to report faults such as missing doors, lanterns and highlights obvious structural defects e.g. leaning column.

6.2 Reporting faults

Faults can also be reported to KCC via the contact centre, calls from council members or online reporting via the KCC website www.kent.gov.uk

All units have a unique code, called a gazetteer reference. These are clearly marked on all lights and are used to identify the unit that is being reported.

Calls will be assessed and non-emergency faults that are reported out of office hours will be actioned the next working day.

6.3 Emergency response

An emergency response is available 24 hours per day, 365 days per year for street lighting faults that present an immediate danger to all.

7.0 Maintenance Standards

7.1 General

All street lighting apparatus installed on behalf of KCC must comply with the requirements of the street lighting policy, strategy and the list of approved apparatus in Appendix A. The environmental impact from future maintenance activities and whole life costings based on a 30 year life will be taken into account prior to any apparatus being specified in Appendix A. This robust approach will ensure that all future street lighting installations are sustainable in the long term.

All street lighting apparatus must comply with the relevant British Standards.

7.2 Street Lights

7.2.1 Columns

All new lighting columns will comply with the requirements of the latest British Standard and will be of a type, height and spacing to ensure that the required lighting level is achieved. Columns will also be selected to ensure that consideration is given to both design and local environment.

The standard colour for lighting columns is light grey (as defined in BS 4800 colour code 00 A O1). Some areas may have a locally adopted colour for street furniture and therefore the columns may require a different colour. This will be agreed with KCC, prior to installation.

7.2.2 Lanterns

Lanterns will be of a high International Protection (IP) rating and of modular construction to provide a future proof structure for installing the latest technical advances.

The design of the optic should allow for a degree of adjustability, and ensure that sky glow is kept to an absolute minimum.

The lantern should be able to be mounted on to a column or bracket without the need for any additional adaptors. They will be able to accept as wide a range of lamp sizes as possible, this will reduce the number of spare parts that are required to be kept in the stores and carried on maintenance vehicles.

7.2.3 Lamps

Lamps for new installations are currently one of three types: Metal-halide, Fluorescent or High Pressure Sodium. Metal-halide and Fluorescent lamps are white light sources and will be used in residential areas and other areas of high pedestrian use or where an impact be using white light is desirable. High Pressure Sodium may be used where there is little or no pedestrian use. Other light sources may be required to be used depending upon the specific location to be lit.

Signs and bollards will be lit by using either fluorescent lamps or Light Emitting Diodes (LED).

As appropriate, lamps may be bulk changed on a cyclical basis to ensure efficiency and certainty of lighting. The bulk change frequencies will vary depending upon the lamp type, the amount of part night lighting and the location of the equipment.

All lamps must be disposed of correctly and in accordance with British and European legislation and directives.

7.2.4 Structural inspection and testing

The structural inspection and testing of all street lighting will be undertaken in accordance with the recommendations in the Institution of Lighting Engineers (ILE) Technical Report No22 and the County Surveyors Society (CSS) publication 'Well-lit Highways – Code of Practice for Highway Lighting Management'. Following the inspection (and or testing) the lighting column will be categorised for condition and any remedial work programmed.

Notwithstanding, if any column is discovered to be in a structurally unsound condition it will be treated as an emergency and made safe. If this poor condition was due to corrosion all similar age and type of columns in the area will be subjected to a structural inspection. This is to ascertain if it was a one off or whether there is a problem due to the local ground conditions or a manufacturing defect.

7.3 Lit Signs

All existing lit signs will be assessed to current standards and will be replaced with non illuminated units where regulations permit. Where signs have to be lit, they will only be during the hours of darkness.

7.4 Lit Bollards

All existing lit bollards will be assessed to current standards and replaced with high-reflectivity, non-illuminated bollards where appropriate. All new bollards will have a private supply to facilitate easy isolation in the event of a crash. Where bollards have to be lit, they will only be during the hours of darkness.

7.5 Photocells

All new street lights, illuminated signs and bollards are to be controlled via an electronic photoelectric control unit.

As photocells fail on existing installations they should be upgraded with the type currently being used for new installations.

7.6 Electrical testing

The electrical testing of all street lighting, illuminated signs, bollards and private cable networks will be undertaken and recorded in accordance with BS7671. Any piece of apparatus that fails this test will be made safe and a programme for repair instigated.

8.0 Electricity Supply Cables

8.1 Distribution Network Operator

The Distribution Network Operator (DNO) owns and manages most of the network of cables that power the highway lighting stock.

There exists a service level agreement (SLA) between KCC and the DNO (currently EDF Energy) that covers all aspects of the electricity supply service. This includes the time to repair a cable fault or the time to install a new supply to a lighting column etc.

KCC currently cannot work on the DNO's cables, and to a great extent have no control on how the DNO's programme their works. The highways service is in the process of obtaining the status of Independent Connections Provider (ICP).

8.2 Private electricity supply

There are locations where there is no DNO network fully available and in these cases a private cable is installed which KCC is responsible for maintaining.

It is important that the location of all private supply cables are recorded and maintained on the asset inventory. This recording is an ongoing process and updates are being made to the inventory on a regular basis.

9.0 Design Standards

Design standards are in every case to be in accordance with the latest versions of the documents listed below.

British Standards (BS 5489)
European Standard (EN13201)
ILE Technical Reports
IEE Wiring Regulations
KCC Standard detail drawings
Kent Design
Design Manual for Roads and Bridges
Traffic Signs Regulations and General Directions

10.0 Replacement Criteria

10.1 Street Lighting

Street lights are replaced when they are damaged due to impact, vandalism or through deterioration, either through a planned replacement programme or in a reactive manner where circumstances dictate. Dangerous columns will be made safe or removed even if funds are not available to replace them.

Upgrades and improvements to the existing street lighting asset, including lanterns, are undertaken annually. Priorities and budgets will be based on the Street Lighting Delivery Plan.

10.2 Lit signs

All illuminated signs that are not required to be lit under the Traffic Signs Regulations and General Directions 2002 will be replaced with high reflectivity unlit signs.

Signs that have to remain lit will be replaced on a needs based assessment.

10.3 Lit bollards

All illuminated bollards that are not required to be lit under the Traffic Signs Regulations and General Directions 2002 will be replaced with high reflectivity unlit bollards.

Bollards that remain lit will be replaced on a needs based assessment.

11.0 KCC Schemes Involving Street Lighting

Each year, a number of highway improvement schemes or major highway schemes are implemented with new or amended street lighting as part of the project.

All of these schemes will comply with Street Lighting Policy and Strategy documents.

All new schemes will take account of maintenance requirements and will reduce the maintenance risks and liabilities, these measures may include:-

- reducing the amount of new street lighting needed
- reducing the amount of new lit signs.
- use of hinged columns in areas of limited vehicular access
- use of high reflectivity bollards, not lit bollards
- use of low energy, white light for all new installations
- lighting in the central reserve of new dual carriageways will only be placed if no other option is available

All changes and additions to lighting undertaken as part of a KCC scheme will be updated on the street lighting asset inventory.

12.0 New Developments

The lighting requirements for new developments will be assessed using the principles detailed in section 4. This will allow advice to be given to developers and planning authorities on the lighting classes to ensure new developments can be adopted by the highway authority with the option of part night lighting, dimming etc.

Many new developments, particularly residential developments, will be lit and will comply with Kent Design and the KCC Street Lighting Policy and Strategy.

13.0 Decorative Lighting, Flower Baskets and Other Attachments to Street Lighting Columns

Requests for decorative lighting, flower baskets and other attachments to street lighting columns should be made to KCC stating the location and the reason for the request.

A 'licence pack' will be issued to the applicant which details the information required and limitations of any approved licence. The full application must be submitted at least 2 months prior to the intended erection date.

No attachment should be fixed to a lighting column until approval has been granted. Any attachment fixed to a lighting column without the appropriate approval in place may be removed. If a structural test is required to be made to the lighting column in order to ascertain whether the column can take the additional loading from the attachment, the cost must be borne by the person making the application.

No electrical connections can be made into the street lighting power supply without the written consent from KCC.

All attachments shall comply with the relevant British Standards and ILE Technical and Wiring Regulations.

14.0 Health and Safety

All works shall be carried out in a manner that is safe for the operatives, the public and all road users. Where appropriate location or project specific risk assessments and method statements are required, these shall be agreed with KCC before any works commence on site. The requirements of the Construction, Design and Management Regulations 2007 will be fully complied with.

All persons working on any street lighting project within the county of Kent must be suitably qualified to carry out the task that they have been delegated.

Appendix A Approved Apparatus

Material - Specification / Supplier

Lamp Columns - Stainton Metal Company or CU Phosco

Tubular / Folded Columns to BS5649 – K Factor 1.5
G2a finish

A & B Class Roads

5m
Post Top
Integral Bracket (Hockey Stick Type 5º uplift) 0.3m projection

6m
Post Top
Integral Bracket (Hockey Stick Type 5º uplift) 0.3m projection
Separate side Entry Bracket (1.0m max) popular type

8m
Post Top
Separate side Entry Bracket (1.5m max) popular type

10m
Post Top
Separate side Entry Bracket (2m max) popular type
Separate side Entry Double Arm Bracket (2.0m max) popular type

12m
Post Top
Separate side Entry Bracket (2.5m max) popular type
Separate side Entry Double Arm Bracket (2.5m max) popular type

Footpath Lighting

Trent Mid Hinged range with Normal door
Trent Mid Hinged range with Flush door

ALL COLUMNS TO BE PAINTED IN ACCORDANCE WITH AREA COLOUR AS SPECIFIED.

Sign Posts

Stainton or The Post and Column Company Ltd

Lanterns

(45w -70w) Electronic – One Part / Mini Cell

Philips - Mini Iridium 451 45w / 60w Cosmo

Philips - Iridium 252 45w / 60w Cosmo

Wrtl - Arc 45w / 60w Cosmo

Philips – Residium 55w Flu

Philips - SGS 252 50w / 70w Son T

Urbis - Sapphire 1 60w Cosmo

Wrtl – Arc 50w / 70w Son T

Industria 2015 50w / 70w Son T

DW Windsor – DW 400 45w / 60w Cosmo

(90w - 150w) Electronic – One Part / Mini Cell

Philips - Iridium 252 90w Cosmo

Wrtl - Arc 90w Cosmo

Philips - SGS 253 100w / 150w Son T

Wrtl – Arc 100w Son T

Philips - Iridium 252 140w Cosmo

Wrtl - Arc 140w Cosmo

(250w - 400w) Electronic – One Part / Mini Cell

Philips – Iridium 254 250w / 400w Son T

Special / Decorative Columns and Lanterns - Subject to Approval

Lamps – Philips, Sylvania, Osram or Ventura

External Sign Lights – Simmonsigns

LUA 1 x 11w c/w Photo cell
LUA LED c/w Photo cell

Internally Light Signs – Ringway Signs or Simmonsigns

LED c/w Zodion SS12HT 35/18

Sign Faces – Ringway Signs

Class 1 Reflective
Class 2 Reflective

Photo Cells – RTE / Zodion

ER4N
Oasis 1000 (Estate Road)
Oasis 2000 (Major Road)
Microstar 2000
SS12HT 35/18

Wall Boxes / Pole Brackets – Pudsey Diamond or AC Ford

Illuminated Bollards – Haldo, Glasdon or Simmonsigns

Reflex (Flexible) 2x 11w c/w Photo Cell
Safelite (600) 2x 11w c/w Photo Cell
Halo 3x10w c/w Photo cell

Non Illuminated Bollards - TMP

Flecta Heritage – Plus

Feeder Pillars – Haldo / Pudsey Diamond

66 (150 x 150) - G2a finish / Galv
2120 - G2a finish / Galv

Secondary Isolation - Charles Endirect (LSI Range)

Refuge Beacons – Charles Endirect or Simmonsigns

A/V Galley AVG-3 - Higlow Beacon (Opal) Celstar 2 – Non flashing LED Unit
A/V Gallery AVG-3- Higlow Beacon (Amber) Celstar 2 - flashing LED unit.

Belisha Beacons – Charles Endirect or Simmonsigns

Modubel Pedestrian crossing beacon assembly with LED unit
Modupost with above beacon assembly.

School Wig Wags – Simmonsigns

Pulsa LED

Cable Joints - Birkett

Appendix B – Criteria for Assessing Lighting Needs of Individual Streets

Table 1 – Investment / Development Categories for Built Up Areas

Carriageway hierarchy	Footway hierarchy	Light all night	Part night Lighting or dimming	Not lit
Major Strategic	Prestige			
Other Strategic	Prestige			
Locally Important	Prestige			
Minor	Prestige			
Major Strategic	Major			
Other Strategic	Major			
Locally Important	Major			
Minor	Major			
Major Strategic	Other			
Other Strategic	Other			
Locally Important	Other			
Minor	Other			

Table 2 – Investment / Development Categories for Non-Built Up Areas

Carriageway hierarchy	Footway hierarchy	Light all night	Part night Lighting or dimming	Not lit
Major Strategic	Prestige	n/a	n/a	n/a
Other Strategic	Prestige	n/a	n/a	n/a
Locally Important	Prestige	n/a	n/a	n/a
Minor	Prestige	n/a	n/a	n/a
Major Strategic	Major			
Other Strategic	Major			
Locally Important	Major			
Minor	Major			
Major Strategic	Other			
Other Strategic	Other			
Locally Important	Other			
Minor	Other			

There will be particular locations and local factors that will lead to exceptions. These include: -

- the lighting of all roundabouts
- the lighting of particular junctions or crash sites
- the lighting of urban alleyways

Appendix C – Road and Pavement Hierarchy Definitions

The Road Hierarchy for Kent is determined as follows :-

Hierarchy Category	Description
Major Strategic (hgv loading >10msa)	Routes or parts of routes linking major urban centre where these are not linked by trunk roads
Other Strategic (hgv loading >2.5msa - <10msa)	Routes or parts of routes between other urban centres or centres of industry/commerce
Locally Important (hg loading >0.5msa - <2.5msa)	Routes or parts of routes of local importance in the distribution of goods or people
Minor Roads (hgv loading < 0.5msa)	All other routes, including estate roads and rural lanes

Msa = million standard axels

The Pavement Hierarchy for Kent category is determined as follows:-

Hierarchy Category	Description
Prestige (C.O.P. 1(a) and 1)	Pedestrianised areas and main shopping centres
Major Walking Routes (C.O.P. 2 and 3)	Routes to schools, hospitals etc; smaller town centres with shopping streets. Lengths of High Amenity footway paving where numbers of peds may not be great, but extra maintenance may be required – these lengths are sometimes quite isolated from other main areas
Other footways	all remaining footways including segregated footways