



# Street Lighting Strategy & Policy



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# CONTENTS

	Page Nos
INTRODUCTION	5
1. OVERVIEW	6
British Standard for the Lighting of Highways - Provision of Lighting Well Lit Highways	
2. FACTORS INFLUENCING THE PROVISION OF STREET LIGHTING	8
3. LIGHTING POLICY	10
4. WHERE LIGHTING WILL BE PROVIDED	13
Areas of Medium District Brightness	
Areas of High District Brightness (Major Traffic Routes and Town Centres)	
Sensitive Areas	
Standards of Lighting	
Lighting Equipment	
Design of Lanterns	
Wall Mounted Lanterns	
Wall Brackets	
Lighting Columns	
5. GENERAL REQUIREMENTS	15
Standard of Lighting	
Legislation	
Obtrusive Lighting	
Lighting Shields	
Motorways and Trunk Roads	
Lighting of Pedestrian Crossings	
Lighting of Traffic Calming	
Lighting of Pedestrian Subways	
Light Sources	
Luminaire Specifications	
Column Specification	
Passively Safe Equipment	
Location of Equipment	
Switching and Dimming	
Use of Solar Panels	
Use of LEDs	
High Mast Lighting on Expressways	
6. MAINTENANCE REQUIREMENTS	27
Statutory Requirements	
Inventories and Record Systems	
Fault Detection and Repair	
Trees and Arboriculture	
7. ADOPTION OF PUBLIC LIGHTING SCHEMES	29
New Lighting Schemes	
Improvement Schemes	
Replacement/Refurbishment of Existing Lighting	
Committed Sums	
8. UNMETERED ENERGY & CLIMATE CHANGE	31
Unmetered Energy Procurement Strategy	
Energy Consumption Monitoring	
CO2 Reduction Measures and Targets	
Renewable Energy Equipment	



## **APPENDICES**

APPENDIX 1 – DEFINITIONS, REFERENCES AND REGULATIONS	32
APPENDIX 2 - ATTACHMENTS TO AND SECONDARY USES OF LIGHTING COLUMNS	34
Decorations In, On or Above the Highway	
Decorations attached to Highway Electrical Equipment	
Other Fixtures and Attachments to Public Lighting Columns	
APPENDIX 3 - SUPPLY OF ELECTRICITY FROM PUBLIC LIGHTING EQUIPMENT	39
APPENDIX 4 - PRIVATE OFF HIGHWAY LIGHTING	40
Illuminated Advertisements	
Car Park Lighting	
Sports Stadium and other Sports Lighting	
Security Lighting	
Domestic Security Lighting	



## INTRODUCTION

This strategy and policy outlines the basic principles and standards applying to street lighting and illuminated signage in Halton. The term “street lighting” encompasses lighting and all other items of illuminated street furniture provided on the public highway (whether or not adopted by Halton Borough Council), except intelligent transport systems (ITS (traffic signals, pedestrian crossings, etc.)) and Variable Message signs (VMS).

The cost to the Council of energy for its electrical assets (including street lighting, traffic signals, illuminated signs, CCTV, etc.) is approximately £1.0m per annum (January 2015). The following is a summary of the electrical equipment installed within the Borough:-

- 19,000 conventional lighting columns plus 400 lighting columns maintained for Halton Housing Trust (HHT)
- 98 high mast lighting columns (on Runcorn Expressway System)
- 1,400 illuminated traffic signs
- 450 illuminated bollards
- 58 traffic signal controlled junctions
- 20 Puffin Pedestrian Crossings
- 5 Toucan (Pedestrian and Cycle) Crossings
- 18 Zebra crossings
- 14 Variable Message Signs (VMS)
- 73 CCTV cameras
- 12 Speed cameras
- 21 Real Time Passenger Information (RTPI) Signs (at bus stops)

There are three main types of lamps used in street lighting columns within Halton which are as follows:

- SOX (lamp) Low Pressure Sodium discharge lamp (orange light)
- SON (lamp) High Pressure Sodium discharge lamp (golden white light)
- LED (lamp) Light Emitting Diode lamp (white light)

# 1. OVERVIEW

## British Standard for the Lighting of Highways

To achieve a structured and coherent approach to the provision of lighting on the public highway the correct levels and associated parameters for the lighting for each specific class of road, street, footpath, cycle track etc. must be determined. Such determination should take account of: -

- the use of the road, for vehicular, cycle and pedestrian traffic,
- local amenities such as leisure centres, schools, churches, community centres, village halls, shops, public houses, health centres, etc. which may affect the night-time use of the road
- the location of the road - rural, urban, etc.
- the environmental aspects.

Each category of road, street, footpath, cycle track etc. will have its own specific requirements, which will affect the level of lighting to be provided. The current British Standards (BS) for Road Lighting are, BS 5489 2013 and BS EN 13201 2003. BS EN is the abbreviation for British Standard European Norm, in other words it is the European Standard.

BS 5489 contains guidance and recommendations that are intended to support BS EN 13201 and to enable designers of lighting systems to comply with that standard.

BS 5489 consists of two parts:

- BS 5489-1 Gives guidance and recommendations for the lighting of roads and public amenity areas
- BS 5489-2 gives guidance and recommendations for the lighting of tunnels.

BS EN 13201 consists of three parts:

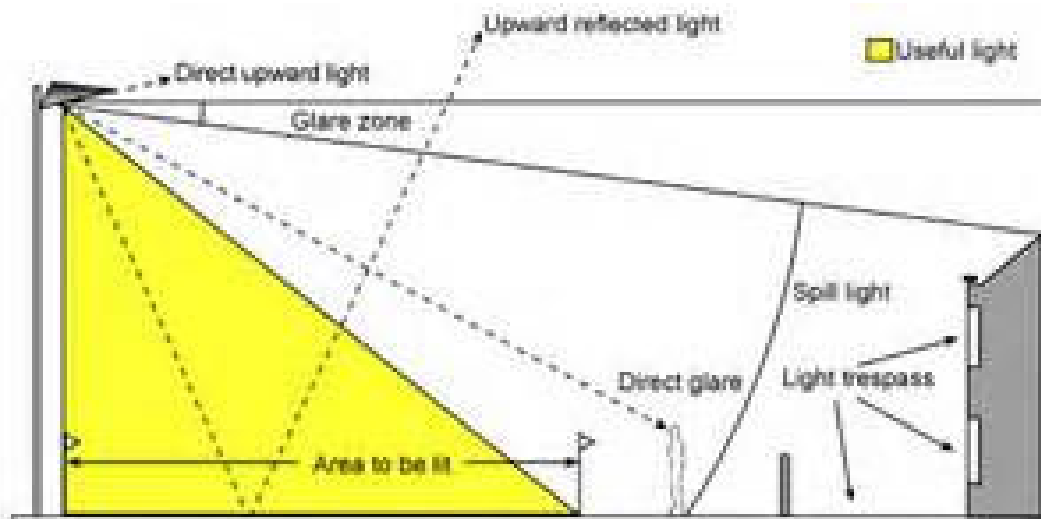
- BS EN 13201 Part 2 – Details performance requirements
- BS EN 13201 Part 3 – Details calculation of performance
- BS EN 13201 Part 4 – Details methods of measuring light.

## Well Lit Highways

Well-Lit Highways, is the code of practice for highway lighting management and was published in November 2004. The Code was drafted by a team on behalf of the UK Lighting Board and it is one of a suite of Codes commissioned by the UK Roads Liaison Group, which also included Roads and Bridges.

It provides local authorities with guidance on lighting management in an ever changing environment, creating a strong foundation for a positive and lasting road lighting maintenance policy. Adoption of the recommendations in this code will help the delivery of Best Value services. Whilst the code is specifically intended for road lighting, the principles are equally applicable to other forms of exterior lighting.





Light pollution is often caused by the way light is emitted from lighting equipment. Choosing proper equipment and carefully mounting and aiming it can make a significant difference.

## 2. FACTORS INFLUENCING THE PROVISION OF STREET LIGHTING

The provision of street lighting and other items of illuminated street furniture should support the Council's main priorities and Halton's Vision:

- A Healthy Halton
- Environment and Regeneration in Halton
- Employment, Learning & Skills in Halton
- Children & Young People in Halton
- A Safer Halton

### Halton's Vision:

Halton will be a thriving and vibrant Borough where people can

- Learn and develop their skills
- Enjoy a good quality of life with good health
- Benefit from a high quality, modern urban environment
- Have the opportunity for all to fulfil their potential
- Develop greater wealth and equality, sustained by a thriving business community
- Live in safer, stronger and more attractive neighbourhoods.

Factors that can influence a decision on when and where to install street lighting:

- A Highway Authority's statutory duties
- Road safety
- Protection and/or enhancement of the night-time environment
- Personal security and the perception of safety
- Increased feel good factor
- Lighting for closed circuit television (CCTV)
- Crime against property including car crime
- Reduction of vandalism
- Visual/environmental intrusion.
  - Daytime appearance, improved appearance of equipment
  - Night-time appearance, better optical control
  - Minimising obtrusive light, upward and intrusive light
  - Limiting lighting in rural areas
  - Location of street lighting equipment in relation to residential property/bedrooms.
- Cost effectiveness
  - Energy costs
  - Energy efficiency
  - Reliability and maintenance of equipment
  - Whole-life costs
  - Coordinated street scene approach
  - External funding incentives/opportunities
- Electrical, structural and other safety issues including testing
- Location and accessibility of equipment
- Specification of equipment
- Lighting styles including specialised columns for use in conservation areas
- Requests to accommodate decorative lighting or banners and the potential impact on the structural integrity of lighting columns
- Recycling and Disposal of redundant equipment including lamps
- Passive safety (columns designed to collapse upon impact by errant vehicle)

- Use of innovative and maturing technology to reduce costs and carbon output:
  - Variable lighting levels with electronic gear
  - Remote monitoring systems
  - Light emitting diodes (LEDs)
  - Carbon free energy supply
- Reduction of primary energy consumption and increasing the share of renewable energies

The above list is not exhaustive but it does give an indication of the many factors that may have to be taken into consideration when deciding whether or not street lighting should be provided.

### 3. LIGHTING POLICY

3.1 The following is a list of highway electrical equipment (January 2015) for which the Council is responsible:-

- 19,000 conventional lighting columns plus 400 lighting columns maintained for Halton Housing Trust (HHT)
- 98 high mast lighting columns (on Runcorn Expressway System)
- 1,400 illuminated traffic signs
- 450 illuminated bollards
- 58 traffic signal controlled junctions
- 20 Puffin Pedestrian Crossings
- 5 Toucan (Pedestrian and Cycle) Crossings
- 18 Zebra crossings
- 14 Variable Message Signs (VMS)
- 9 CCTV cameras
- 12 Speed cameras
- 21 Real Time Passenger Information (RTPI) Signs (at bus stops)

3.2 The following principles apply to the provision and maintenance of street lighting:

- The promotion and maintenance of safety for all users of the highway with special consideration for all vulnerable user groups, e.g. pedestrians, cyclists, the elderly or people with disabilities and children, the principal aim of which is to reduce night-time accidents.
- The enhancement of the night-time environment with special reference to lighting in town centres and historic/conservation areas (e.g. the Victorian lanterns in Daresbury village).
- The promotion of lighting in areas suffering Crime and Disorder issues together with increasing personal security, reducing the fear of night-time attack on individuals and to deter vandalism of property.
- The avoidance of detrimental environmental impact in terms of the visual appearance of lighting, both day and night, adjacent to and on the highway and the overall impact on the environment in terms of energy conservation and light pollution.
- The provision of cost-effective lighting systems which are energy efficient
- The incorporation of whole-life costs
- Promoting the purchase of energy derived from renewable resources.
- The need for consultation with elected members and Parish Councils specifically as regards conservation issues.

#### 3.3 Future Lighting Provision

3.3.1 **Due to the increasing energy costs for street lighting, it is recognised that action must be taken to minimise future growth in energy consumption.** It was agreed by the Executive Board on 29<sup>th</sup> March 2012, that in the first instance, street lighting be switched off on high speed roads (i.e. roads with a speed limit higher than 40 mph) between midnight and 6.00am throughout the year.



3.3.2 **It is proposed that there should be no net increase in the highway electrical equipment stock that will increase the demand for and cost of energy other than for the following situations:**

- Statutory requirements (such as the illumination of certain road signs);
- Road safety reasons (such as when signs and/or bollards that are required to be illuminated OR when traffic control equipment (e.g. traffic signals, Puffin crossings, etc.) is installed as part of Local Safety Schemes at collision sites);
- Adoption of new developments (including industrial and residential);
- The installation of electrical equipment as part of our statutory duties or partnership working (such as air quality monitors or ANPR cameras).

3.3.3 **It is proposed that there should be a presumption against new lighting schemes or additional highway electrical equipment funded through Area Forums (such as CCTV, lighting footpaths, traffic management/engineering schemes requiring illuminated signs, car parks or recreational areas) or from the Council's other capital budgets, unless the additional revenue budget is available to fund the on-going lighting/highway electrical equipment and maintenance indefinitely.** This proposal could also restrict the installation of new traffic signal equipment, Variable Message Signs (VMS), etc. **Obviously, each case will be judged on its merits depending on the potential impacts on the safe and efficient movement of pedestrians and vehicles, and on crime and disorder in the community for example, but it is evident that difficult choices will need to be made.** Where it is possible to avoid adding to the Council's stock of highway electrical equipment then this must be done. All proposed improvement and safety schemes are reviewed to reduce or remove any additional energy requirements whilst still meeting relevant design standards. It is proposed that lighting, including traffic signal controlled junctions and crossings, will be provided only if it is a key element of a safety scheme or part of an access to a new development. Traffic signs will not be lit unless it is a legal requirement, high reflective materials will be used for both direction signs and bollards to obviate the need for lighting. The provision of vehicle activated signs will be reviewed, where they are provided they will continue to be solar powered and their maintenance costs closely monitored.

3.3.4 Structural maintenance of lighting columns is currently funded from the Council's Capital Budget. This has enabled a saving to the Council's revenue budget to be realised without reducing maintenance standards. However, this has now reduced the revenue budget to such a point where there is no scope for further reductions without actually removing existing lighting units. In 2013/14, approximately 70% of the available Revenue budget for the maintenance of all street lighting, traffic signals, signs, bollards and pedestrian crossings, is required for the energy bill. This amounts to over £1.0m per annum.

3.3.5 The need to cut its energy bills and carbon emissions by reducing or removing street lighting, which may even need to be considered in residential areas. **Consideration will need to be**

**given in the future to the removal of lighting from independent footpaths (i.e. where there is a suitable alternative route and it is not the main access route to properties) and gated routes to the rear of residential properties (i.e. rear entries and passageways).** This review will be carried out when the existing lighting columns and lanterns reach the end of their life and it is not viable to replace them. It will need to be done on an area basis to ensure a consistent approach and it will, at the same time, aim to overcome a current maintenance issue where it is often difficult to gain access to carry out maintenance to some columns because of, for example, locked gates having been installed, or where obstructions have been placed on paths and where there is no vehicular access (this makes safe access to the lantern difficult especially where hinged columns have not been installed).

- 3.3.6 **Where there are suitable alternative lit routes, then consideration will also be given to no longer installing lighting on independent footpaths, unless it is a primary route to a school or major employment areas.** This will be particularly applicable to independent cycleways and bridleways, which are provided primarily for recreational purposes.
- 3.3.7 **A presumption against any future growth in street lighting provision will be difficult due to the need to provide it on new residential roads and high profile regeneration schemes.** Also there could be a need to install new lighting both for road safety and community safety reasons. A reduction in street lighting standards, such as turning off every other light, would leave the Council exposed to liability claims because street lighting is provided to national industry standards, and hence cannot be recommended. It has also been noted that the removal of street lighting could have serious impacts on the Council's priorities for road safety and community safety.
- 3.3.8 Any decision to remove street lighting from residential areas would be more cost effective if carried out in complete areas, to avoid areas of contrasting light and darkness. This would also avoid liability claims due to the area not being lit to the current design standards (or the standards at the time of installation). To be most cost effective, the oldest lighting units would be decommissioned first and this would need to be phased in over a period of years.
- 3.3.9 It is likely that any of the measures to reduce costs could prove to be unpopular and with the exception of the SJB flood lighting, all could have road safety and community safety implications. There is a concern that the removal of street lighting, or even switching it off between specified periods, has the potential, for example, for reversing the very encouraging downward trend in road casualties. It follows, therefore, that any measures that are imposed to save energy costs will need to be very closely monitored to determine their impact on road casualties. A number of the Council's key priorities could also be adversely affected especially in terms of promoting social inclusion and accessibility, and reducing crime and disorder.
- 3.3.10 There is an unavoidable incremental growth in the street lighting stock through the adoption of streets in new residential areas and the construction of new roads. New additional lighting units have also previously been funded through the Area Forums. Annually, these initiatives increase the inventory by approximately 250 units per year, but with no increased budget to cover the additional costs. The current total stock is in the order of 23,000 units (2014).

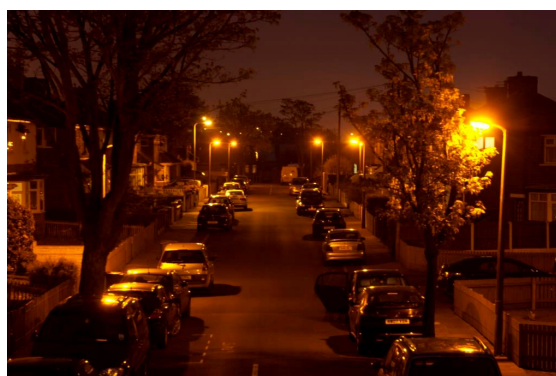
## 4. WHERE LIGHTING WILL BE PROVIDED

Within Halton there are three main types of lamps used in street lighting columns which are as follows, although other types have been used for special applications, such as in Victoria Square, where Ceramic Metal Halide (CDM) lamps (white light) were used:

- SOX - Low Pressure Sodium discharge lamp (orange light). This type was generally installed until 1990 and was used on all types of roads.
- SON - High Pressure Sodium discharge lamp (golden white light). This type was installed on all types of roads from 1990 and is still used on high speed roads.
- LED - Light Emitting Diode lamp (white light). This type is generally used in residential areas, but will be expanded to other areas as the technology develops.



LED lanterns



SOX lanterns

Lighting is provided in accordance with the current standards (see section 1), which classifies areas within the following categories:

### 4.1 Areas of Medium Brightness (Residential areas)

Roads falling into this category include all urban residential local access roads and footpaths (as defined by “Well Lit Highways”). Within Halton this includes most roads in residential areas.

As a general rule, roads in these areas are lit to the levels/standards originally provided/current at the time of installation/adoption, but when the lighting is refurbished it will be designed to the standards current at that time. This will allow new technologies to be used such as LED lighting and adaptive lighting (previously referred to as dimming). Replacement columns will generally be installed on a one for one basis but with replacement columns being positioned at the rear of the footway and on property boundary lines to assist the mobility and visually impaired.

### 4.2 Areas of High Brightness (Major Traffic Routes and Town Centres)

Major traffic routes are defined as all A and B class roads and contain all strategic routes, main/secondary distributor and link roads as defined in “Well Lit Highways”. Generally, all roads in this area will be lit to the British Standard relevant at the time of installation or refurbishment.

Within Halton enhanced lighting has been installed on the following areas, which are not major vehicular traffic routes but are important pedestrian routes:

- Bridge Street, Runcorn
- Albert Road/Widnes Road, Widnes.

On 29<sup>th</sup> March 2012, the Executive Board of the Council approved the policy “To turning off street lighting on high speed roads (over 40 mph speed limits) between midnight and 6.00am throughout the year.”

### **4.3 Sensitive Areas**

For the purposes of this policy, Sensitive Areas are defined as:

- Statutory Conservation Areas, Scheduled Ancient Monuments, Listed Buildings (including the Silver Jubilee Bridge) and their settings.
- Non-statutory historic or heritage areas and older urban regeneration areas, identified by Halton as the Local Planning Authority.

There are other Council sponsored initiatives, which will be the subject of special treatment and funding (e.g. Victoria Square, Widnes). These will generally operate within the categories described above but some will have their own specific requirements. All these sensitive areas have a unique character and it is important that lighting arrangements are tailored accordingly, rather than being “standardised”, in order to enhance the area where any works are carried out.

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

In order to identify opportunities and constraints specific to the site under consideration, a Master Plan or Design Brief shall be prepared in conjunction with the appropriate planning officers. This should also take into account the views of interested outside bodies (e.g. historic societies, parish councils, etc.) to ensure that the appropriate environmental and lighting design solutions are achieved.

In view of the pressures upon financial resources, the provision and costs of environmentally designed lighting schemes and future maintenance liabilities will need to be borne in mind.

### **4.4 Standards of Lighting**

The overall lighting standards for a specific area will generally meet the requirements of the current BS EN at the time of installation or refurbishment. As a general rule, new or replacement lamps shall be a white light source although consideration to alternative light sources (particularly for the purposes of floodlighting) will be given where required. There may be situations in particular locations used heavily at night, where a higher than the normal standard of illumination will be required.

In all historic areas the Lighting Engineer shall consult with the Local Conservation Officer to ensure that the historic styling and/or location of equipment is appropriate for the area in question.

In determining levels of illumination, lighting positions and styles, the design will consider pedestrian and vehicular uses/needs in relation to the following:

- Areas of activity - shops, school entrances, bus stops, libraries, highways, paths, etc. and areas of conflict (junctions, etc.).



- Listed buildings and historic qualities of the area.
- Building heights.
- Street features - crossing points, seating areas, tree planting, pinch-points, materials/colours, etc.
- Existing lighting - positions, styles, heights, lux levels, lighting type, lighting from shops, floodlights, etc. In assessing appropriate levels of illumination the existing and ambient lighting, from shops, floodlighting schemes, etc. may only be taken into account in special instances. The continued operation of ambient or privately owned lighting sources cannot be guaranteed for the life of the scheme.
- Local knowledge, incidence of vandalism, collision sites, etc.

The floodlighting of landmarks and historic buildings should seek to minimise pollution of the night sky and be discouraged where there is no on-going budget to fund energy and maintenance costs, in the case for local authority schemes. If floodlighting is being promoted by a private body then the same principles shall apply and all costs shall be met by them.

The design and installation of special or temporary lighting shall comply with the relevant sections of the current national design standard.

#### **4.5 Lighting Equipment**

All lighting equipment shall complement and enhance the appearance of the area. Conservation Area status does not establish a pre-requisite for period style lighting – good functional modern designs may be suitable. However, the particular character of a historic area may demand a non-standard approach or a blend of various lighting sources. Every opportunity should be taken to extend the range of acceptable equipment available through discussions with suppliers.

The restoration of existing cast iron and ornamental columns or lanterns, which are of architectural merit, will be encouraged but the electrical safety requirements must be considered paramount when deciding whether to reuse units. The retention of existing columns/lanterns, where these are of local historical importance, is desirable particularly where they form a feature of the locality.

#### **4.6 Design of Lanterns**

Generally standard lanterns will be used, applicable to the type of road. If “period style” lanterns are used, care should be taken to match historical periods. However, it is also necessary to maintain a harmony of style, as far as possible, as different lantern types may produce a cluttered and unplanned effect.

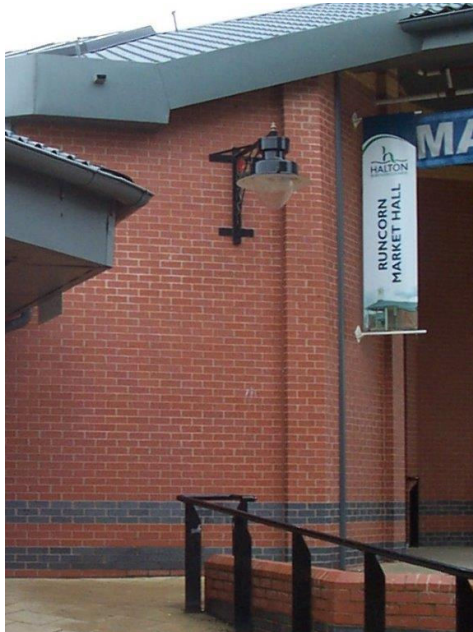
Where a modern style of fitting is proposed this, together with its control gear, must be recessive in design and colour (e.g. grey to blend in with the area) and be sited so as to be unobtrusive as far as possible during the daytime. Such fittings should be simple and of appropriate shape, colour and scale to the architectural setting.

There is a general presumption towards using, as far as possible, lanterns that minimise light pollution of the night sky.

#### **4.7 Wall Brackets/ Wall Mounted Lanterns**

Wherever appropriate lanterns should be affixed to buildings, in particular where footways are narrow and subject to very considerable pedestrian traffic. Brackets can be of architectural interest in their own right. Where new fittings require brackets, then fixings must take into account the nature and stability of the building; more than two fixing points should

be provided, especially for buildings with timber frame, lime mortar or soft brick construction. Also Wayleave Agreements will need to be obtained in advance of the work starting on site. 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 or aluminium.



Wall mounted lantern

#### 4.8 Lighting Columns

Currently there is a mix of concrete, steel, stainless steel and more recently aluminium columns installed within the Borough. In future all new lighting columns shall be constructed of single extrusion aluminium with a minimum design life of 50 years and be suitable for the attachment of road traffic signs (as defined in the Traffic Signs Regulations & General Directions) in accordance with BD94, which currently allows a maximum area of 0.3 sq. m. Further details are contained in Appendix 2. Columns shall require no maintenance during their design life. In addition, on high speed roads (i.e. speed limit over 40 mph) then consideration should be given to making them passively safe and including an electrical disconnection system, where they are not erected behind safety fences.

The use of high mast lighting is generally not acceptable, although there are a number of existing masts on the Expressway system in Runcorn, which were installed as part of the New Town. However, due to the increased maintenance costs it is not proposed to install any new masts, although they will need to be retained around the southern end (Runcorn side) of the Silver Jubilee Bridge, due to the difficulties involved in installing conventional lighting.

Ornamental columns should be constructed from a single material but, where this is not possible, then the respective metals must be protected from each other to reduce cathodic action taking place. The restoration of existing cast iron and ornamental columns which are of architectural merit is encouraged. 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 isolation can be achieved. New lanterns for such existing columns must be appropriate to the period of the column. Ornamental columns must be constructed from compatible metals. The mounting height must be appropriate to the scale of the setting in the street scene.



Ornamental Column

Where lighting columns need to be used, they should be sited to avoid obstruction to the footway (particularly for people with disabilities) (see paragraph 5.13). However, where this means that columns would be provided at the back of footways adjacent to buildings, consideration should be given to installing wall mounted fittings in lieu of columns. This will also be subject to the adjacent buildings being suitable both in terms of height and construction, together with the owner's agreement.

## 5. GENERAL REQUIREMENTS

### 5.1 Standards of Lighting

All new lighting should be provided, designed, and installed in accordance with Section 4 (above) and in accordance with the following supporting documents:

- HBC Street Lighting Design Guide; Street Lighting Material and Works Specification
- HBC Standard Detail Drawings
- Manual for Streets

### 5.2 Legislation

5.2.1 There is no statutory duty to provide street lighting. The power to provide street lighting is set out in Section 97 Highways Act 1980 (see below).

The original purpose of street lighting was purely a crime prevention matter. It was unrelated to highway safety. The fact that street lighting outside of urban areas is still unusual is a reflection of this fact.

All public lighting should fully comply with the following legislation and regulations:

- Highways Act, 1980
- Goods and Services Act 1994
- The Local Government Contract Act 1997
- Public Health Act 1961
- The Management of Health and Safety at Work Regulations 1999
- Electricity at Work Regulations 1989
- Traffic Signs Regulations and General Directions, 2002 and 2005 amendments
- Disability Discrimination Act 2005
- The Highways (Road Humps) Regulations 1999
- New Roads and Street Works Act 1991
- Traffic Management Act 2004
- BS 7671:2008 Requirements for Electrical Installations,
- BS EN 60529: "Specification for Degrees of Protection for enclosures.
- BS EN 60598-2-3: 1994, Luminaires for Road and Street Lighting.
- BS 5649 : "Lighting Columns"

#### **Highways Act 1980**

*97 Lighting of highways.*

*(1) The Minister and every local highway authority may provide lighting for the purposes 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 persons for the supply of gas, electricity or other means of lighting; and*  
*(b) construct and maintain such lamps, posts and other works as they consider necessary.*

*(2) A highway authority may alter or remove any works constructed by them under this section or vested in them*

*Under Part III of the Local Government Act 1966 or section 270 below.*

*(3) A highway authority shall pay compensation to any person who sustains damage by reason of the execution of works under this section.*

*(4) Section 45 of the Public Health Act 1961 (attachment of street lamps to buildings) and section 81 of that Act (summary recovery of damages for negligence) apply to a highway authority who are not a council of a kind therein mentioned as they apply to such a council.*

If street lighting is provided under the Highways Act then it needs to be maintained in a serviceable condition.

Removal of street lighting is likely to reduce the quality of life for many of the people of Halton.

- 5.2.2 On the 1 April 1998, when the Borough Council became a Unitary Authority and the Highway Authority, it assumed responsibility for the maintenance and operation of highway lighting throughout the Borough on adopted highways, including the provision of new installations.

There are two main categories of Roadway Lighting – Group A (columns of a height of 10m and above) and Group B (columns of a height of between 5m and 8m) as laid down in the British Standard Code of Practice for Street Lighting.

Footway Lighting - A system of lighting provided for independent footpaths away from the highway and is designed in accordance with the relevant standard.

- 5.2.3 Where Town or Parish Councils wish to provide lighting on a highway the consent of Halton Borough Council, as Highway Authority, is required.
- 5.2.4 The Highways Agency is the Highway Authority for road lighting on Trunk Roads and Motorways, and has its own Policies and practices for the maintenance of those installations.

### 5.3 Obtrusive Lighting

Obtrusive light is light which falls outside the area to be illuminated which, because of its quantity, direction or colour causes annoyance, discomfort, distraction or reduces the ability to see. Obtrusive light is often referred to as Light Pollution, which can be defined as the adverse effect of artificial light.



Light pollution

Obtrusive light can be subdivided into three main categories:-

**Skyglow** - The artificial brightening of the sky caused by the scattering of artificial light by dust particles and water droplets in the atmosphere. Often seen as an orange glow above urban areas and commonly referred to as Light Pollution. A large percentage of Skyglow is caused by light emitted directly upwards or at high angles of elevation from poorly designed luminaires and to a lesser extent light reflected from surfaces.

**Glare** - An intense blinding light, usually seen against a dark background, which can result in reduced visual performance and visibility. Poorly designed, installed and maintained lighting can cause glare that can affect the vision of pedestrians, cyclists and drivers, creating a hazard rather than increasing safety.

**Light trespass** - Light falling where it is not wanted or needed, light spilling beyond the boundary of the property on which the light is located. Poor exterior lights that shines into neighbouring properties and bedroom windows, reducing privacy, hindering sleep and affecting the appearance of the area.

Consideration shall be given to the restriction of obtrusive light by:

- The control of the type of light source
- Restricting the level of light emitted by the luminaire at high angles usually between 70 and 90 degrees.
- The use of full horizontal cut off luminaires for mounting heights above 6m will have a substantial effect on restricting obtrusive light.
- Similarly, the use of shallow bowl luminaires for mounting heights of 6m or less will help to reduce the overall level of obtrusive light produced by road lighting installations, but may add to the numbers of lighting units required.
- The use of LED lanterns can considerably reduce obtrusive lighting

Special consideration will need to be given to the effect of lighting on adjacent areas used by other means of transport so as to avoid dazzle to users of these facilities:

- major airports
- railways
- harbours
- transport interchanges
- navigable waterways
- adjacent unlit traffic routes
- car parks

This will include the design, installation and maintenance of any lighting systems to reduce the risk of damaging the night sight of the transport operators or reducing the visibility of signalling equipment.

Consideration of these problems at the design stage can substantially reduce the effect of obtrusive light. However, the installation must be properly maintained to ensure that any special provisions are kept in full working order and correctly adjusted.

The use of uplighters, or similar equipment intended for decorative lighting installations, will be strongly discouraged unless a significant benefit to the local community can be demonstrated which outweighs environmental and cost concerns.

## **5.4 Lighting Shields**

The majority of modern lanterns have optical controls designed to limit or negate intrusion into properties. However, it is recognised that intrusion can still occur in exceptional circumstances. Where this intrusion is the direct result of maintenance or improvement works then, where possible, shielding will be provided free of charge.

However, in any cases where the day-to-day operations of the Borough Council are not the cause, and are for example due to a change of occupancy or room use, then the provision of such shields will be undertaken on a rechargeable basis.

Any such shielding should be of a bespoke nature designed by the luminaire manufacturer to fit the lantern in question. Where such shields are not available, and the column height is below 8m, then generic shielding, attached to the bracket, is permitted. Generic shielding at 8m or above is not permitted for Health and Safety reasons.

## 5.5 Motorways and Trunk Roads

Motorways (e.g. M56 and M62) and Trunk Roads are maintained by the Highways England, which is a Government Owned Company charged with operating England's motorways and major A roads. The Company's policy with regards to the lighting of these roads is separate from that of the Borough Council. Enquiries regarding this policy should be directed to Highways England, National Traffic Operations Centre, 3 Ridgeway, Quinton Business Park, Birmingham, B32 1AF Phone: 0300 123 5000

## 5.6 Mersey Gateway

The route between A562 Speke Road and A557 Weston Point Expressway/M56 Junction 12 Clifton via Mersey Gateway Bridge and A533 Central Expressway are maintained by the project company on behalf of Mersey Gateway Crossings Board. Their policy is generally the same as Halton Borough Council, but they are responsible for all maintenance for 30 years from March 2014.

## 5.7 Lighting of Pedestrian Crossings

Pedestrian and traffic signal controlled pedestrian crossing points are areas of high conflict between pedestrians crossing the road and motorists. Pedestrian Crossings should be lit to meet the recommendations of the Institution of Lighting Professionals, Technical Report No.12 "Lighting of Pedestrian Crossings", or its successor, and, where applicable, the current British Standard for Road Lighting.



## 5.8 Lighting of Traffic Calming

Lighting of traffic calming features shall comply with Highway (Road Hump) Regulations 1996 Section 5 or its successor. Measurements of lighting levels in the immediate area shall be taken to determine if additional lighting is required

## 5.9 Lighting of Pedestrian Subways

Subways are provided as a safe route for pedestrians and cyclists to cross busy traffic routes or railways and they need to be maintained in a safe and usable condition at all times if the facility is to be used. In Runcorn, a large number were provided as part of the New Town to provide segregated routes for pedestrians away from vehicular traffic, which was part of the Master Plan.

Subways, and the approaches to them, can be intimidating at night if they are not carefully designed and provided with good street lighting. The lighting should be designed and installed in accordance with the current British Standard for Road Lighting.

Subways should be bright and attractive to encourage their use. The walls should be treated or tiled to allow easy cleaning and removal of graffiti and of a light colour to reflect light. Subways should be designed to allow flexible switching arrangements, providing different levels of illumination during the day and night to cope with extremes of daylight from a very bright sunlit day to a dark overcast night. Contrary to normal street lighting practices, high levels of illumination need to be provided in subways during daylight if users are to feel safe entering and passing through the subway.

However, high levels of lighting during daylight hours can cause a “reverse black hole effect” when leaving a brightly lit subway on a dark night. Therefore, levels of light during the hours of darkness should be reduced to between 50 and 100 Lux dependent upon the type of subway.

To further reduce the reverse black hole effect, and make the entrance and exit of subways more attractive and inviting, attention should be paid to the approach lighting to the subways with particular attention being given to a gradual reduction in lighting levels from those inside the subway to normal street lighting levels outside. Sudden transitions in lighting levels may cause distress and anxiety to users.

The units shall be of stainless steel construction fitted with polycarbonate lenses and a sacrificial outer sheet to make the removal of graffiti easier. The access covers shall be hinged.



## 5.10 Light Sources

All lamps will now generally be a “white light source”, such as SON High Pressure Sodium discharge lamp or LED Light Emitting Diode lamp. In all cases electronic control gear must be used with low loss gear (minimises losses through controls) to ensure the most efficient use of energy. All new electronic control gear must be capable of dimming by a minimum of 25%.

## 5.11 Luminaire Specifications

All luminaires used for the purposes of street lighting shall contain an acceptable optical system to direct the light onto the highway within the limits set by BS EN 60598. To ensure the minimum environmental pollution to the night sky, the amount of upward light from the



lantern shall be kept to a minimum and, where possible, new lantern designs shall be incorporated in the standard design specifications to maximise this approach but still retaining electrical and illumination efficiency.

All luminaires should be manufactured to a minimum of IP 54 to BS EN 60590 for the lamp containment area and should be manufactured from vandal-resistant material. Lanterns must be designed and tested to provide a minimum normal operating life of 25 years.

### **5.11 Column Specification**

All street lighting columns installed on the highway shall comply with the requirements laid down in paragraph 4.8 above and the current edition of the HBC Street Lighting Material and Works Specifications.

The only exception to the requirement above will apply to cast iron, cast aluminium or some decorative steel columns, which may be used in environmentally sensitive or conservation areas. These columns will be subject to a separate specification, when required, but generally they will be factory painted with a final decorative top coat of paint being applied on site following erection.

Particular note should be made of the requirements of Appendix 2 where columns are used for the support of street decorations, festive lighting, etc. and the imposed limitations. In order to reduce street clutter and installation and maintenance costs, Road Traffic Signs should be mounted on columns wherever possible but within the limitations imposed by the current design standard from the Department for Transport, BD 94 (Memorandum), which specifies a current limit of 0.3 sq. m.

### **5.12 Passively Safe Equipment**

Passively safe - crash friendly roadside features, such as lightweight sign posts, lighting columns and vehicle restraint systems offer a lower risk of personal injury when struck by a vehicle. Where speeds are low, for example, in most urban housing estates, there is little if any advantage in using passively safe lighting columns. Passively safe columns are designed to collapse and therefore the risk to pedestrians in such areas is much higher when compared to conventional columns.

Passively safe columns are recommended for consideration on major high speed (speed limit over 40 mph) roads where there is less likelihood of them falling onto the carriageway or pedestrians, due to the layout and lack of footpaths. The final determination on provision of such equipment will always be made on a site-by-site basis. Consideration will also be given to the installation to automatic electrical isolation systems.

### **5.13 Location of Equipment**

As a general rule, obstruction of the footway by columns and illuminated sign posts should be avoided by positioning columns and posts at the rear of the footway. This will contribute to compliance with current legislation, including the Disability Discrimination Act relating to people with disabilities, and a reduction in street clutter. Where columns and sign posts are mounted in the highway verge they must be set back by 450mm from kerb edge or the minimum distance recommended in the current British Standard for Road Lighting, whichever is the lower. Columns will be positioned on the boundaries between properties unless the location of trees, vehicular accesses, overhead lines, etc. prevents this location being chosen or the spacing of columns would result in uneven lighting levels. The location will also be affected by sign faces to ensure adequate clearance. The final positioning of equipment shall be determined on site by the street lighting engineer.

The Council is not obliged to consult on the positioning or re-positioning of lighting columns and the decision will always rest with the street lighting engineer. Positions other than those initially determined by the street lighting engineer will only be permitted in exceptional circumstances and only when the street lighting engineer feels it is possible to agree to alternative locations without impacting on safety or where they would not result in uneven lighting levels. Any additional costs will be borne by the person requesting the column to be re-located.

If a resident/organisation requests that a lighting column be re-located when it is not being re-located by the Council as part of their works, then they shall pay the fees as detailed in the Council's current fees and charges schedule.

## **5.14 Switching and Dimming**

The majority of street lighting in Halton is controlled by photo-electric cells (PECUs). At present these vary between older thermal PECU and the more modern electronic versions. However, all new lighting installations will be fitted with equipment suitable for dimming which will allow greater control and flexibility of the lamp and control gear and reduce energy consumption. All such equipment must be compatible with that currently used within the Borough.

### **5.14.1 Adaptive Street Lighting (Dimming)**

Adaptive street lighting, previously known as dimming, varies the lighting levels and, in turn, energy demand to suit the appropriate lighting class required, based on pedestrian and vehicular traffic levels, at a particular time. It is applied predominately in the early hours of the morning when pedestrian and vehicular traffic levels are at their lowest.

Adaptive lighting has been installed on various sites throughout the Borough since January 2010. It is achieved by retrofitting smart electronic components into existing lanterns, or from new when installing new lanterns. The saving in energy consumption varies dependent upon the amount the light is dimmed and the number of hours it is dimmed during the night. Typically, the light levels have been dimmed by 30% to the appropriate lighting class, between the hours of midnight and 6.00am. Dimming the light level by 30% gives an energy saving after control gear losses of around 17%. Dimming from midnight until 6.00am through the year equates to 1895 dimmed hours and 2252 non-dimmed hours.

The time period at which the lighting is dimmed is also the low demand period for the power stations, which need to be kept running and any significant reduction in demand may possibly impact on their operations. It now appears that in some areas where street lighting is switched off at night, some power companies are compensating for lost revenue by increasing charges for daytime energy and energy used in the early evening, which are periods of higher demand. This therefore potentially offsets any savings being made by switching off lighting during the night, but it will assist in the reduction of carbon emissions. This will need to be taken into account when considering further proposals to switch street lighting off.

Where possible all new lighting installations whether in residential developments, regeneration sites or on existing roads are fitted with equipment suitable for adaptive lighting. This technology is well established on wattages up to 150W, and recently suitable technology has been introduced for adaptive lighting on the higher wattages of 250W and 400W which are commonly used on the expressways and main roads within the Borough.

### **5.14.2 Change Switching Levels for Columns (Trimming)**

The idea of changing the switching levels so that lights come on later and go off earlier is sometimes referred to as trimming. The lanterns are controlled by photoelectric cells, which are set to switch on and off at pre-determined light levels. These light levels can be reduced so that lights come on slightly later and go off slightly earlier and hence reduce energy consumption. Prior to 2001 all photoelectric cells fitted were designed to switch on at a light level of 70Lux and turn off at 105Lux which equates to 4211 burning hours per annum. All photoelectric cells fitted between January 2001 and May 2008 have been set to switch on at 70Lux and off at 35Lux which equates to 4147 burning hours per annum. Since May 2008 all photoelectric cells have been set to switch on at 55Lux and off at 28Lux which equates to 4127 burning hours per annum, i.e. a 2% decrease in burning hours from pre 2001.

### **5.15 Use of Solar Panels**

Use of solar panels is often thought of as an easy way to reduce energy costs. However, there is a high initial cost for purchase and installation and at the present time the technology does not produce enough power to light a streetlight for the whole period of darkness. It would need to be supplemented by a wind turbine, which is likely to be unacceptable in residential areas. There is also a higher risk of the equipment being stolen due to its perceived value. If the equipment is damaged then there is a higher replacement cost. The life of the batteries is also unknown and creates an environmental disposal issue.

At the present time solar panels are being used to power vehicle activated signs with mixed success. The use of solar panels to power lights for road signs is a possibility, but is only viable for new standalone units as the cost of providing an electrical connection is similar to the cost of providing a solar panel. Panels have been installed in several areas and they seem to be working well, so they are now installed in areas where there is no electricity supply.

### **5.16 Use of Light Emitting Diodes (LED)**

In order to save energy Light Emitting Diodes (LED) light units, which use less energy and last longer than conventional lamps are now being installed. These are previously being used in certain situations where equipment permits e.g. in school crossing patrol warning lights (amber flashing lights), zebra crossing beacons, illuminated bollards and lights for road signs. Funding has been secured to accelerate the conversion of street lighting to LED operation

LED street lighting lanterns are now installed as standard on new developments in Halton. These have been mainly in residential areas where there is a greater range of lower wattages available, suitable to meet the required lighting standard. The energy saving with LEDs is typically between 30% and 60%. This was backed up by trials by St. Helens MBC where the lighting was received well by the residents. The lamps are guaranteed to last 10 years with an expected life of 25 years.

LED traffic signals heads have been installed at several sites throughout the Borough and initial results indicate an energy saving for the whole junction of between 60 and 70%. All new traffic signal installations and refurbishments of existing traffic signals now incorporate extra low voltage (ELV) equipment. This will not only save energy by using LED signal heads, but it will also be safer as there will be less risk of electric shock in the event of a fault/vandalism. The option of converting existing sites to LED and/or ELV operation is being investigated as and when funding becomes available.

## 5.17 High Mast Lighting On Expressways

- 5.17.1 The Expressway network in Runcorn is predominately lit using high mast columns. These are reaching the end of their design life and are suffering from structural defects and a programme of replacement with modern low-level lighting is underway. Funding is drawn from the LTP allocations and at current levels of investment it will take approximately 15 years to replace all high mast columns with conventional lighting. However, due to the number that have already reached the end of their design life, the work ideally needs to be carried out as quickly as possible and in the short term some masts may need to be removed, leaving no lighting in place.
- 5.17.2 The option of removing high mast lighting from the Expressway Network could result in an energy cost saving in the order of £98,000pa at 2012 prices. However, while it would be relatively inexpensive to decommission and remove the remaining 98 high mast lighting units (approximately £100,000) there would also be a cost to replace them with conventional lighting (approximately £1,100,000).
- 5.17.3 Leaving the decommissioned masts in situ for any length of time would retain the liabilities referred to above and structural safety surveys at a cost of £50,000 per year would still be required until they are removed (conventional lighting columns do not require such structural surveys). Once removed, the surveys would not be required but it would still take a number of years to remove all masts if this option were pursued.
- 5.17.4 The retention of lighting at junctions with local roads is recommended for safety reasons. On the approaches to the Silver Jubilee Bridge it will also be necessary to retain/replace about 20 high masts due to the network of bridge structures in place and the difficulties of installing conventional lighting. In March 2009, 10 masts were replaced by 9 new masts on the approach to the bridge. This now leaves 10 masts to replace in the near future using any available funding.



Replacement of high mast lighting with conventional lighting

## 6. MAINTENANCE REQUIREMENTS

### 6.1 Statutory Requirements

**There is no statutory obligation to provide street lighting. However, all local authorities have a duty of care to ensure all highway electrical equipment is maintained in a safe condition.** All systems of public lighting will be maintained to a standard that ensures its safe, economic and effective operation.

### 6.2 Inventories and Record Systems

The maintenance of an up-to-date electronic-based inventory of all units to ensure satisfactory management of the maintenance process, and to enable the annual assessment of the energy charge to be obtained, is vital. Inventory information, including GIS positional data and DfT risk assessment data is being gathered and maintained in accordance with the ILE Technical Report no. 22, "Managing a Vital Asset" and the UK Roads Liaison Group document "Well Lit Highways".

### 6.3 Fault Detection and Repair

Fault detection is currently carried out by a series of night time scouts which covers all of the Borough's lighting stock each month. However, members of the public can and do report them via the website (on line form and tweets), contact centre or One Stop Shops. Also faults will be reported by the Council's staff whilst carrying out their duties.

All faults reported are categorised in accordance with the following categories:

- Emergency Fault (where there is a potential to cause an immediate danger) attendance within one hour of fault being reported to the Council
- Urgent Fault (e.g. multiple lamp failures within a road or footpath) attendance within 24 hours of fault being reported to the Council.
- Non-Urgent Fault (e.g. lamp out or day burner (lantern on at all times) attendance within five working days of fault being reported to the Council

Rectification periods which include cable faults and loss of supply are not subject to above timings and can take considerably longer, especially if it is necessary to arrange for Scottish Power or their sub-contractor to repair the fault. These faults should be repaired within 30 working days

#### **Electrical Inspections**

Electrical inspection and testing of all street lighting is carried out every 6 years in accordance with the requirements of BS7671. All results are recorded on the Borough Council's asset management database.

#### **Structural Inspections and Risk Assessments**

Structural inspections and risk assessments will be undertaken on a regular basis, during the course of planned maintenance programmes, to ensure all equipment is in a safe condition.

The results of these inspections will be recorded in the Borough Council's asset management database.

Where equipment is found to have a serious structural defect then such equipment will be removed immediately or within 24 hours at the latest. The replacement of the equipment will be reviewed to determine the current needs and the availability of funding. In certain

circumstances (as detailed above), such as in rear passageways and on independent footpaths then the equipment will not necessarily be replaced.

#### **6.4 Trees and Arboriculture**

It is important that trees and other vegetation do not impede the functions of street lights or other items of illuminated street furniture. Where this problem does occur then the Council will contact the owner of the trees or vegetation to request that it is cut back within 28 days. If the work is not carried, then the Council will arrange for the work to be carried out and the costs will be recharged back to the owner.



## **7. ADOPTION OF PUBLIC LIGHTING SCHEMES**

### **7.1 Sections 38/278 and Other Highway Improvements - Adoption Procedures**

Where proposed highway works lie within areas designated to be lit (as mentioned earlier in this document) then the Highway Authority's street lighting and illuminated sign requirements shall form part of any Agreement and/or Contract. Such general requirements are laid down in the "Manual for Streets", the "Model Section 38 Agreement" and the Departmental standard drawings/material specifications.

### **7.2 Lighting Standards**

For each development, the standard of lighting shall be in accordance with the HBC Street Lighting Design Guide. Also, all illuminated street furniture will meet the minimum specification requirements as detailed in the HBC Street Lighting Works Specification.

### **7.3 Commencement of Works**

For new works on existing adopted highways, e.g. because of the need to carry out Section 278 works, the Project Engineer shall inform the Borough Council's Street Lighting Section of the programmed works start date no less than 28 days before commencement on site. The Project Engineer shall ensure that the contractor is responsible for the maintenance of all street lighting within the contract site boundaries for the duration of the project, including payment of energy costs for the new highway works; the Council will continue to pay for energy charges for existing lighting equipment that is retained.

The Project Engineer shall also ensure that the contractor maintains the existing level of lighting (either luminance or illuminance) during the course of the project, or until the new lighting comes into operation, and provides a written record of the maintenance undertaken during the course of the works.

### **7.4 Inspection, Handover of Documentation and Street Lighting Inventory**

The Project Engineer responsible for managing/supervising or inspecting new systems of street lighting (including Section 38 and Section 278 works) shall inform the Street Lighting Section of the substantial completion of the works no later than 10 days after completion of the works and pass all documentation to the Street Lighting Section at the same time.

The Project Engineer shall ensure that all handover paperwork (including as-built drawings, completion certificates, electrical test certificates and inventory records) is provided by the contractor 10 working days PRIOR to his/her request for substantial completion.

### **7.5 Commuted Sums**

For all new highway electrical equipment (including street lighting, CCTV and Intelligent Transport Systems (ITS)) provided as part of new developments, then the developer shall pay the Council a commuted sum to cover the cost of 10 years maintenance, based on the current HBC Term Maintenance Contract or 10% of the new works costs, whichever is the higher, plus the energy charges for the equipment based on the current energy supply contract rates for 10 years. Subject to the agreement of the Borough Council, where a standard of materials is required that exceeds the standard specification, and which, as a result, will incur higher maintenance costs, a Commuted Sum, equal to the one-off replacement cost of the equipment/furniture, will be levied payable to the Council prior to

adoption of the completed scheme, this is in addition to the standard commuted maintenance costs detailed above.

Where a higher standard of materials is installed without the agreement of the Borough Council and/or where a Commuted Sum has not been paid, then adoption will not be granted and the on-going maintenance as detailed in paragraph 7.3 will be the responsibility of the Developers or their appointed Managing Agents.

## **7.6 Embedded Networks**

In the case of illuminated street furniture, Embedded Networks are electricity supply networks installed by third party companies rather than the local Distribution Network Operator (DNO). As a general rule, the Borough Council has no objection to the provision of such networks provided they are installed to a standard that can be adopted and maintained by the local DNO should it be necessary.



## **8. UNMETERED ENERGY & CLIMATE CHANGE**

### **8.1 Unmetered Energy Procurement Strategy**

Subject to the Borough Council's Standing Orders, unmetered energy will be procured via a central buying consortium in order to obtain the best value for money possible. In accordance with the Borough Council's corporate policies on Carbon Reduction, the purchase of unmetered energy seeks to obtain 100% green energy which has benefits to the environment in reducing greenhouse emissions and other pollutants. However, consideration of a mix of green and brown energy, or nuclear energy, may also be given.

### **8.2 Energy Consumption Monitoring**

Monitoring of energy consumption will be achieved through the maintenance of an up to date inventory of lamps, control gear and switches.

### **8.3 CO2 Reduction Measures and Targets**

The Borough Council is committed to reducing CO2 emissions by 8% by 2020 (based on 2008 figures). In real terms, taking into account annual increases in stock through new developments, this represents a 15% reduction overall. This will be achieved through the introduction of new energy efficient lamps and control gear, dimming, trimming of lamp burning hours and deillumination of equipment where possible.

### **8.4 Renewable Energy Equipment**

At present the availability and reliability of solar, wind or other renewable energy equipment is in its infancy. Trials of solar powered equipment, in particular, have identified areas of improvement required to make it both energy and cost effective. The Borough Council recognises the importance of the promotion and improvement in this area if its targets on CO2 emissions are to be met.

### **8.5 Climate Change**

The Borough Council is committed to tackling climate change and priorities include:

- Reduction of primary energy consumption and increasing its share of renewable energies
- Sustainable procurement by procuring energy from green sources and selecting equipment that is recyclable and energy efficient



Solar powered sign

## APPENDICES

### APPENDIX 1 - DEFINITIONS, REFERENCES AND REGULATIONS

#### DEFINITIONS

##### Lighting Authority

Halton Borough Council, as Highway Authority, is automatically a Lighting Authority. A Lighting Authority is responsible for public lighting maintenance within its area.

Town and Parish Councils can also be Lighting Authorities as well as those Social Housing Groups - previously part of District or Borough Councils - with powers to provide lighting on the highway with the consent of the Highway Authority. For the purposes of this Policy they are each termed collectively as a 'Local Lighting Authority'.

##### Illuminated Street Furniture

For the purpose of this Policy illuminated street furniture includes all subway lighting, illuminated signs and bollards as well as street lights. Therefore, for a large advance direction sign illuminated by a lighting unit, physically separate from the sign and its mounting, the sign would not be covered by the definition, only the lighting unit and its stub post would be included within the definition.

##### Highway Referencing System

A locational referencing system which uniquely identifies individual sections of public highway. It also fulfils the Highway Authority's legal obligation to hold an inventory of highways maintainable at public expense. The Mayrise system is used within Halton to record the inventory of equipment and the fault history for each location.

##### Lamp Types

SOX (lamp) - Low Pressure Sodium discharge lamp (yellow light).

SON (lamp) - High Pressure Sodium discharge lamp (golden white light).

LED (lamp) - Light Emitting Diode lamp (white light)

RCD (Residual Current Device) - An item of electrical apparatus used to provide supplementary protection within a specific time period.

#### Definitions, References and Regulations

British Standards:

BS 5489\_1: 2013 Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas

BS EN 13201\_2:2003 Road lighting – Part 2: Performance requirements  
BS EN 13201\_3:2003 Road lighting – Part 3: Calculation of performance  
BS EN 13201\_4:2003 Road lighting – Part 4: Methods of measuring lighting performance.  
BS EN 12193: 2003 Light and lighting – Sports lighting

Chartered Institution of Building Services Engineers (CIBSE)/Society of Light & Lighting (SLL)  
Publications:

- CoL Code for Lighting (2002)
- LG1 The Industrial Environment (1989)
- LG4 Sports (1990+Addendum 2000)
- LG6 The Exterior Environment (1992)
- FF7 Environmental Considerations for Exterior Lighting (2003)

CIE (The International Commission on Illumination - also known as the CIE from its French title, the Commission Internationale de l'Eclairage) Publications:

- 01 Guide lines for minimizing Urban Sky Glow near Astronomical Observatories (1980)
- 83 Guide for the lighting of sports events for colour television and film systems (1989)
- 92 Guide for floodlighting (1992)
- 115 Recommendations for the lighting of roads for motor and pedestrian traffic (1995)
- 126 Guidelines for minimizing Sky glow (1997)
- 129 Guide for lighting exterior work areas (1998)
- 136 Guide to the lighting of urban areas (2000)
- 150 Guide on the limitations of the effect of obtrusive light from outdoor lighting installations (2003)
- 154 The Maintenance of outdoor lighting systems (2003)

Department of Transport: Road Lighting and the Environment (1993) (Out of Print)  
Design Manual for Roads & Bridges (DMRB) – BD94 – Design of Minor Structures

Institute of Lighting Engineers (ILE) now Institution of Lighting Professionals (ILP) Publications:  
TR 5 Brightness of Illuminated Advertisements (2001)  
TR24 A Practical Guide to the Development of a Public Lighting Policy for Local Authorities (1999)  
GN02 Domestic Security Lighting, Friend or Foe  
ILP PLG03 Lighting for Subsidiary Roads

ILE/CIBSE Joint Publications Lighting the Environment \_ A guide to good urban lighting (1995)  
ILE/CSS (County Surveyors Society) Joint Publications Seasonal Decorations – Code of Practice (2005)

HBC Street Lighting Design Guide  
HBC Street Lighting Works Specification

## **APPENDIX 2 - ATTACHMENTS TO AND SECONDARY USES OF LIGHTING COLUMNS**

In general, the Borough Council supports the erection of decorative/festive lighting over the highway, but would prefer that such decorative lighting should be attached to or supported from buildings adjacent to the highway, wherever possible. The following guidance notes are also recommended for decorative installations over privately owned land that is open to access by the general public. For the erection of all decorative festive lighting, on or over the highway, the Highway Authority shall issue a formal licence indicating the conditions under which such apparatus may be erected on each occasion. The licence will be issued annually for each type of apparatus to be erected.

### **Decorative/Festive Lighting Supported from Buildings**

For all decorative or festive lighting mounted over, or free standing in, the highway each installation shall:

- Be approved in writing by the Highway Authority via a licence prior to the erection of the fixtures for a period not exceeding 28 days unless planning permission has been granted for a longer period.
- Be the sole responsibility of the body installing the lighting and shall have adequate insurance to indemnify the Highway Authority for the minimum amount for any one incident as required by the licence.
- Be removed immediately upon request by the Highway Authority or be removed by the Highway Authority at the owner's expense if there is concern about the safety of the system.
- Be manufactured with supports and mounting points capable of supporting the decorative fixtures which are suitable for a wind of K factor 2.

If utilising a catenary wire as support then this should be of sufficient strength to support the fixture/fitting as above. It is recommended that stainless steel or high-tensile steel be used. Generally, for protection against electric shock, all systems shall be rated at 25v SELV. However, for systems sited a minimum of 3.5 metres above the highway, mains voltage (230v) may be used. In all such systems, the installer must ensure that the requirements of BS 7671 are met and supplementary protection by the use of a 30mA RCD shall be given.

All apparatus 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 Regulations for Electrical Installation.

In addition to the above:

- An agreed set of inspection/emergency procedures is to be provided to the street lighting section.
- Each installation shall be tested and the electrical test certificates and test results passed to the street lighting section on the day following installation prior to energising.
- A qualified structural engineer with professional indemnity must certify the installation.
- No installation shall be permitted where it may be in conflict with any adjacent traffic signal system.
- The installer must provide evidence of public liability insurance to the required level as indicated in the licence.

For sound economic reasons, the columns used for the majority of highway lighting locations have been standardised and have not been designed for significant additional loadings. Consequently, this must limit the number and sizes of fixtures permissible. However, the erection of such fixtures and fittings will be permitted provided the above conditions are met.

## **ADDITIONAL REQUIREMENT FOR DECORATIVE LIGHTING, FLOWER BASKETS AND OTHER ATTACHMENTS TO STREET LIGHTING COLUMNS**

### **Fixtures Attached to Street Lighting Columns**

In addition to the requirements to support decorative fixtures over a road from a building, the following requirements shall be met to permit the erection of any temporary decorative/festive lighting and flower baskets to street lighting columns:

- In the case of new or replacement lighting systems, in locations where it is known that decorative lighting will be required, the lighting columns shall have been fabricated to support such temporary lighting structures, flower baskets or other attachments such as banners and a certificate of compliance lodged with the Highway Authority.

In the case of existing lighting systems being used to support decorative lighting, flower baskets or other attachments, such as banners:

- The system of street lighting to be used to support the decorative lighting shall be inspected at a period recommended by a competent structural engineer. A competent structural engineer shall be commissioned to provide a report to the Highway Authority prior to the erection of the decorative lighting, confirming that the columns can structurally support the proposed decorative festive lighting, flower baskets or other attachments such as banners. That engineer will have professional indemnity to support his report.

Decorative festive lights or flower baskets or other attachments such as banners must not hinder the normal maintenance of the highway structure concerned.

No banner or catenary wire shall be permitted to be erected between two street lighting columns unless the structure has been designed and fabricated specifically for that purpose.

Power supplies to decorative festive lights should not be derived from adjacent buildings, but from within the street lighting column acting as the support. (This is to avoid instances of connection to private supplies, over which the Highway Authority has no control).

The body responsible for the installation/connection of the decorative lighting shall, separately, contract with an electricity supply company for the supply of energy, unless the Distribution Network Operator (DNO) agrees to it being added to the Council's EAC. In which case the Council will recharge the body responsible for the lights.

Where switch wires are used to control the power supply on adjacent columns, they shall be labelled with the location of the isolation point at appropriate positions along the length of the wire.

All temporary fixings used to attach the decorative festive lights, flower baskets or other attachments such as banners to street lighting columns must be free from corrosion at all times and must be removed at the end of the licence period. Any damage to the protective surface of the columns must be made good at the licensee's expense and immediately after the removal of the apparatus. Where banners are attached to columns, then the brackets shall be designed to collapse under strong winds, but still retain the banner to avoid it falling into live traffic.

The Highway Authority has the right to request removal of such equipment at any time, which the responsible body must comply with within 28 days of the request.

## **OTHER FIXTURES TO STREET LIGHTING COLUMNS (PERMANENT OR TEMPORARY)**

In general, street lighting columns, whether used for permanent or temporary fixtures, should comply with the guidelines indicated in DfT Memorandum BD 94. This means that the erection of sign plates of greater than 0.3 square metres in area is not permitted. Columns must not be used as the second leg of a sign requiring a second post, as experience has shown that this has caused significant problems with existing columns.

Banners with an area of up to 1.0 square metre may be attached to lighting columns providing wind deflecting brackets are used and they not erected for more than three months. In certain circumstances (e.g. if over 10 years old, evidence of structural damage, etc.) it may be necessary to carry out a structural test on the lighting column before agreement to attach a banner is granted. Also if strong winds are forecast then it may be necessary to request that the banners are removed immediately to reduce the risk of structural damage to the column. The cost of erection, removal and provision of the banners shall be borne by the organisation requesting them

Street lighting columns shall not be used as supports for advertising signs of any kind, except where recognised organisations (i.e. Automobile Association or Royal Automobile Club) have been granted permission by the Highway Authority and the relevant fee paid. Also, when fixed, such signs should not obscure the unit maintenance number.

## **TEMPORARY OR PERMANENT ATTACHMENT OF CCTV EQUIPMENT TO STREET LIGHTING COLUMNS**

Under the Crime and Disorder Act 1998, the Borough Council has a duty to embed crime and disorder prevention into service planning, delivery and decision making and so reduce crime and the fear of crime in all our communities.

Highways provide accessibility between destinations and the temporary or permanent location of CCTV cameras within the highway may assist with crime prevention. However, it is also necessary to consider the matters of privacy to adjoining properties, levels of light within the neighbourhood and the possibility that the crime and anti-social behaviour may disperse to adjoining areas or out of view of the cameras.

The Borough Council must consider what other measures have been implemented or discounted to try and reduce levels of crime and anti-social behaviour and what other alternatives exist (e.g. the use of mobile standalone CCTV units or units fixed to other structures or buildings) before consideration can be given to CCTV being mounted on highway furniture.

The promoting body will need to provide the necessary data to demonstrate CCTV is justified and an analysis of the likely impacts for the area to be covered as well as the surrounding area.

## **PROTOCOL**

The Borough Council requires the promoting body to provide an analysis of crime and anti-social behaviour incidents, both in the area to have CCTV, the adjoining area and the background levels of crime in the area. This information needs to include an analysis of types of crime and time of day at which the crimes occur. Where possible, trend data should be included. The request should contain an assessment of why CCTV is expected to reduce the incidence of crime and what alternative measures have been carried out or considered and rejected.

The promoting body will normally be the Task & Co-ordination Group (T&C) (including representatives from Cheshire Police, Cheshire Fire & Rescue Service, Halton Borough Council and other appropriate local partners).

Where the T&C is not the promoting body, the Group should be used to consider the crime analysis for the location and a copy of its advice should be included with the submission.

Information should be provided on the area and demonstrate the likely coverage of any proposed CCTV. The use of temporary CCTV requiring the regular moving of the equipment between locations will only be considered in exceptional circumstances. The Borough Council will assess the proposals as to the practicality, effectiveness and likely benefit in reducing crime and the fear of crime.

If there is a demonstrable case for the provision of CCTV, the Borough Council will discuss with the promoting body, funding and management arrangements including:

- capital costs of the CCTV and its installation;
- maintenance costs and responsibilities;
- operational responsibilities; and
- Public liability.

If there is a strong case for CCTV being made, the Council will facilitate the erection of the equipment on the street furniture. All costs, liabilities and operational arrangements must be met by the local promoting body. An appropriate agreement will be drawn up with the responsible body.

## **PROCEDURE**

All installations by parties other than the Highway Authority, mounted over or free standing in the highway, or mounted on highway furniture shall:

- Be approved by the Highway Authority prior to the erection of the fixtures.
- Be the sole responsibility of the body installing the CCTV and shall have adequate public liability insurance to indemnify the Highway Authority for the minimum amount for any one incident as required by the licence.
- Be removed immediately upon request by the Highway Authority or be removed by the Highway Authority at the owner's expense if there is concern about the safety of the system.
- Be manufactured with supports and mounting points capable of supporting the equipment suitable for a wind of K factor 2.
- In all systems the installer must ensure that the requirements of BS 7671 are met and supplementary protection by the use of a 30mA RCD shall be given.

All apparatus 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 Regulations for Electrical Installation.
- New Roads and Streetworks Act 1990
- Traffic Management Act 2004
- An agreed set of inspection/emergency procedures shall be provided
- Each installation shall be tested and the electrical test certificates and test results.
- Power supplies to CCTV installations should not be derived from adjacent buildings, but from within the street lighting column acting as the support. On-going costs for the power supply are to be agreed.
- All temporary fixings used to attach the CCTV equipment to street lighting columns must be free from corrosion at all times and must be removed at the end of the licence period. Any

damage to the protective surface must be made good immediately after the removal of the apparatus.

- The Highway Authority has the right to request removal of such equipment at any time, which the responsible body must comply within 28 days of the request.

In addition to the guidance for the erection of the CCTV equipment above each applicant shall:

- Ensure necessary signage for overt CCTV usage is displayed appropriately
- Ensure the police confirm with regard to their monitoring of the CCTV that they comply with the CCTV Codes of Practice Revised Edition 2013 or subsequent updates
- Ensure that there is a protocol for viewing images of CCTV and storage of evidential and disclosure material compliant with Data Protection Act, Police and Criminal Evidence Act (PACE) and Criminal Procedures & Investigation Act 1996 (CPI).
- Ensure HBC Street Lighting Section has confirmed suitability and stability of lamp posts selected for potential CCTV use.
- Ensure erection/removal is carried out through the Borough Council Street Lighting Term Maintenance Contract.
- Ensure that the Police / T&C Group have appropriate mechanisms for reviewing, monitoring and assessing use and continued use of CCTV.
- A deployable camera shall not be attached to the same lighting column for more than three months in any twelve month period.
- It shall not generally be mounted at a height of 6m or less above the adjacent ground.



## **APPENDIX 3 - SUPPLY OF ELECTRICITY FROM PUBLIC LIGHTING EQUIPMENT**

Road works and other works carried out by the utility companies in, or adjacent to, the highway can often require a supply of electricity for temporary traffic signals, water pumps, inspection and safety lighting and other items of site equipment. Halton Borough Council is not an electricity supply authority and temporary supplies should be supplied from a portable generator. There are generators available that will run silently when installed overnight near occupied properties. The problem should not be overcome by the provision of a temporary power supply from a nearby street lamp unless arrangements have been made for the DNO to carry out the connection, maintenance and disconnection of the power supply.

Temporary supplies can be a danger to the public if not correctly installed and maintained.

The provision of temporary supplies of this nature can present problems for the security and safety of the lighting equipment and the temporary installation. Whilst an installation may be temporary and for a short period of time, it does not remove the need for it to be installed in accordance with the Electricity at Work Regulations and the requirements of BS 7671: 2008 Regulations for Electrical Installations. It is essential that temporary electrical installations are properly installed, inspected, tested, and maintained.

It is a criminal offence to obtain electrical energy without prior agreement of the Electricity Supply Company (Scottish Power).

Under the terms and conditions of the connection agreement with the Electricity Company, Halton Borough Council is responsible for the payment for all energy taken from any item of highway electrical equipment owned and operated by it unless the energy is taken illegally.

Therefore, in the absence of a specific agreement between the organisation using the electricity and the Electricity Company for the payment of the electrical energy used, the Highway Authority could be held liable for the cost of the energy.

Halton Borough Council may give permission to the Electricity Company to use lighting equipment as a temporary supply point. In this instance, the Borough Council shall ensure that the Electricity Company will take full responsibility for the safety of the installation and maintenance of the temporary power supply and for recovering the cost of the connection and the energy used.

## **APPENDIX 4 - PRIVATE OFF-HIGHWAY LIGHTING**

Off-highway lighting adjacent to lit or unlit sections of highway can be the cause of distraction/danger to the travelling public and detrimental to the night-time environment.

This distraction/danger can be caused by glare from light fittings located in the vicinity of the highway and where the intensity of the emitted light is quite bright.

It is also becoming environmentally unacceptable to pollute the night sky from such fittings, or cause light-trespass, and the Council, as Local Planning Authority, positively encourage measures to reduce the impact on all occasions by offering advice on such matters.

The Planning Authority also encourages measures to reduce light pollution and light-trespass. The Street Lighting Team shall provide advice on such off-highway lighting to assist with the attachment of conditions to such planning applications.

All sites are carefully monitored at the planning application stage but especially:

- Petrol filling stations.
- Car park lighting - particularly out of town shopping/commercial developments where sphere style lights in particular should be rejected as a means of area illumination.
- Industrial security lighting.
- Domestic security lighting
- Lighting for sports stadia, playing fields and golf driving ranges.
- Illuminated advertisements.
- LED or Laser Lighting which can create intense beams of light that may present a hazard.

The Planning Team scrutinise all planning applications for exterior lighting and take enforcement action where unapproved lights have been erected and are affecting the night environment.

In general, the style of lighting to be used in almost all instances should be the “down lighter” type with a flat glass (i.e. no bowl) lantern mounted in the horizontal position to reduce the spill light to the surrounding areas.

Illuminated advertisements should utilise the down light style of illumination.

The Institution of Lighting Engineers’ Technical Report No. 5 (2nd Edition), “Brightness of Illuminated Advertisements” is considered to have too high a level of illumination and the Borough Council will recommend lower levels of illumination on request.

As a general rule Planning Applicants are encouraged to ensure, as far as possible, their schemes, including private lighting, are designed to minimise light spill, night sky pollution and hours of operation as well as being required to be maintained throughout the life of the system.

The introduction of the Clean Neighbourhoods and Environment Act (2005) gives local authorities, and residents, greater powers in relation to poorly installed or maintained domestic security lights. Local authorities are encouraged to utilise these powers wherever reasonably possible.