

City of York Council Street Lighting Policy First Edition

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Introduction

This policy outlines the basic guidance, principles and standards for all street lighting and illuminated signs within the City of York Council's boundaries. "street lighting" and "Illuminated signs" covers all lights illuminating public areas and highways, along with architectural lighting, shelter, subways, tunnels, council parking areas and lit signage excluding traffic signals, push button crossings, and programmable variable message signs.

Detailed guidance is given in the appendices included.

Overview and Main Objectives

The provision of lighting within the authority enables residents, visitors and traffic alike to interact and perform task within the night time environment supporting the following

- Assisting the safety of highway users.
- The reduction of crime.
- The reduction of the fear of crime.
- The promotion and support of sustainable transport (walking, cycling, and public transport).
- The facilitation and support of social inclusion by providing improved freedom to use the streets after dark.
- The support of a vibrant night time economy.
- The provision of improved access to public leisure and educational buildings, supporting life long health and learning.
- Assisting emergency services with improved identification of locations (shortened response times, improved CCTV identification)

Legal Powers and Duties

The currently has no statutory obligation or requirement for a local authority to provide street lighting, instead the following statutes enable and empower them to be able to provide public lighting.

- The Highways Act 1980 empowers a local Highway Authority to provide lighting where they are or will be the Highway Authority (existing roads or new developments). District and Parish Councils have devolved powers as local lighting Authorities conferred under The Public Health Act 1985 and The Parish Councils Act 1957 (however consent must be given from the Highway Authority).
- With these powers the Highway Authority has a duty of care to the users. Any loss or injury to an individual due to the inappropriate use

of these powers may result in action being taken to recover the losses. Action can be taken on several grounds including – Negligent exercise of power, Action for misfeasance of public office, Breach of common law duty of care (if it can be established).

NOTE: This duty of care does not imply a duty on the Highway Authority to keep the public lighting lit. Instead it implies a duty to ensure systems and processes are in place to maintain and keep the lighting in a safe condition i.e. the detection of dangers electrical or structural.

- The Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1992, and Construction (Design and Management) Regulations 2007 set out the arrangements and requirement for works to be carried out in a safe manner along with establishing the arrangements for managing construction works.
- The New Roads and Street Works Act 1991 enable the duties of a Street Authorities to coordinate and regulate works in the highway. All underground cables therefore should be recorded in accordance with this act along with the requirements of the Electrical Safety, Quality and Continuity Regulations 2002.
- Other Frameworks of Legislation that do not specifically relate to highways or public lighting functions (not exhaustive) but deal with issues of the services involved and their provision are – Equality Act 2010, Criminal Justice and Public Order Act 1994, Human Rights Act 1998, Freedom of Information Act 2000, and the Local Government Act 2000.

Design Standards and Considerations

In addition to and including the legal powers and duties to enable the City of York to have a high quality and coherent approach to lighting, the following standards and approaches need to be and are considered when providing new or altering existing installations (detailed description and guidance is included in the appendices).

The City of York Council currently offers a full comprehensive service covering design, installation, maintenance and inspection of all exterior lighting schemes.

- Consideration towards the primary user of the highway and any special requirements for vulnerable users i.e. pedestrians, cyclists, heavy traffic.
- The location and environmental classification / zone of the highway.
- The usage of the highway / area i.e. car park, square, architectural.
- The location of local amenities e.g. schools, public buildings, shops.

- Daytime and night time visual appearance of equipment.
- Obtrusive Light and pollution.
- Energy efficiency.
- Equipment reliability (some lighting types need very little maintenance e.g. LED's)
- Equipment Locations in relation to obstructions and maintenance.
- Whole life costs.
- Strategies relating to whole streetscape i.e. historic core.
- Innovations and advanced technologies.
- Equipment specifications (to match CYC's approved standards).
- End of life equipment disposal i.e. recyclability.
- Sustainable and efficient procurement i.e. whole cycle carbon emissions and costs.
- Public risk from accident i.e. passively safe columns, pedestrian crossings and conflict areas.

These considerations are to be taken account of whilst designing to current applicable standards and guidance. Currently all new highway installations are designed to BS5489 2013 Code of Practice for the Design of Road Lighting and BS EN 13201 2003 Road Lighting with reference to the Institute of Lighting Professionals Technical Reports where necessary (detailed application given in Appendices along with criteria for whether lighting is required). Any lighting scheme should limit light to the public highway and it is not considered the Authorities duty to light private access', egresses, or unadopted areas.

Sensitive Areas

For the purposes of this policy sensitive areas can be considered as conservation areas

(http://www.york.gov.uk/downloads/200560/conservation_areas) along with scheduled monuments, listed structures and other notable locations and their surrounds. In these areas provided that the primary function of the lighting is achieved then special consideration should be made in relation to enhancing and improving the area through the correct selection of equipment and its location. In these locations rather than a "standard"

approach they should be looked at uniquely in order to best fit for each locations characteristics and needs.

Before consideration can be given to any lighting replacement or scheme discussions and consultation should be made with the relevant bodies and reports

http://www.york.gov.uk/info/200560/conservation_areas/94/york_central_historic_core_conservation_area_appraisal_final_draft/4).

Proposed schemes within sensitive areas before construction and possible eventual adoption by the authority (even if not to be adopted) are subject to a specific lighting design brief that must be approved before commencement by any relevant bodies. It is assumed that lighting improvements would form part of any overall environmental enhancements within a sensitive area.

In designing such schemes the access and maintenance of equipment must also be given consideration, in order not to require onerous provisions causing unreasonable disruption in such sensitive areas i.e. scaffolding to perform routine tasks.

Consideration for Selection of Standards in Sensitive Areas

Overall guidance on the selection of standards is given in the appendices, however other specific requirements in sensitive areas must be considered. To not account for the requirements could result in an inappropriate system of lighting that will detract from or even damage the appearance of a sensitive area.

In general new equipment along with the refurbishment of specialist items i.e. ones that form part of a listed structure should be of an LED source. Architectural systems should be programmable and consider colour variance as an option. Any use of other light sources must first be agreed with the Lighting Department.

In specific reference to the actual level or volume of lighting this must also be looked at on an individual location and situational basis. Some streets and public areas will be busier than others with higher levels of footfall and possible risk requiring more light, where as other may require to be left as dark. An immediate assumption that lighting may be a blanket requirement across a whole area may not be correct and actually destroy the appearance and “feel” of an area. In these situations consultation with local conservation officer and groups must be given.

Particularly when creating a brief for sensitive areas consideration must be given to the following items:

- The activity and purpose of the area being developed – Shops, Public Buildings, Squares, conflict areas (crossings, shared use spaces).
- Listed Structures and Scheduled Monuments in the vicinity including sites of historical reference.
- The height and bearing on of nearby and adjacent buildings.
- Specific features and furniture e.g. trees, benches, fountains, crossing points.
- Existing lighting systems including ambient levels created by properties.
- The levels and surfacing of the ground. Consideration needs to be made for the less able and visually impaired, including the highlighting of hazards.

Consideration must also be given to local knowledge with regards to vandalism, black spots, and anti social behaviour. When lighting architectural features systems must limit any light pollution and spillage, along with consulting local strategies such as Re-invigorate York.

Equipment Considerations in Sensitive Areas

Lighting equipment should complement and enhance an area whilst not visually being too over bearing and detracting from local features. It is not always necessary to assume that being in a conservation area would immediately require period or replica fittings. Instead consultation with conservation officers and groups will give a best indication of style and size requirements.

Existing equipment with historic merit or forming part of a listed structure should be retained and restored by a specialist organisation. In these cases it is not necessary to retain the original internal components and use can be made of modern technologies. For example on Lendal Bridge all the lanterns were restored with new led light engines used instead of high pressure sodium. However where the existing sources are gas then this should be retained at all costs. Consideration should also be given to ensure a uniformity of styles and effect in each proposed scheme. Often a “mish mash” of equipment will detract more from an area than inappropriate matching modern fittings.

Mounting of Equipment in Sensitive Areas

In the City of York the vast majority of streets in sensitive areas are narrow with restricted use to both vehicles and pedestrians alike. In these situations the preferred option of mounting lights is on buildings. Prior to any works agreements must be gained in the order of Way leaves, Listed Building Consents and other legal obligations. The actual sitting and style of bracketry and light should take into account the style, location and elevation of the property.

Where building mounting of lights is not possible the lights should be located as to be as least visually obtrusive as possible. As with any other areas the columns should be placed at the rear of footways and avoid detracting from any adjacent property or land mark.

Materials of Equipment in Sensitive Areas

Due to the difficulty and access restrictions in sensitive areas great consideration is needed for those materials in use. All columns ornate or not are required to be manufactured from a single material and have an expected design life of 50 years. Where dissimilar materials are used special systems are required to avoid cathodic reactions. Ornate columns should be modular in that the embellishments should be an attached part of a more normal column. Columns made as a single cast unit are no longer used by the City of York due to their prohibitive handling requirements, high maintenance and high replacement costs.

General Lighting Requirements

All lighting schemes within the City of York boundaries shall be provided, designed, installed and maintained in accordance with this policy, its appendices and supporting documents. A failure to adhere to this may result in non-compliance a refusal to adopt the systems and/or creating risk and further costs to the proposer of the scheme. The following general guidance along with specifics highlighted in the appendices sets the basis of all York installations.

Obtrusive Light

In accordance with guidance given by the Institute of Street Lighting Professionals (<https://www.theilp.org.uk/documents/obtrusive-light/>)

Obtrusive light is described as light which falls outside a required area. Because of its level/quantity, direction and colour it can cause annoyance, distraction and discomfort reducing the ability to see correctly (not to mention wastes energy). More commonly known as light pollution it is divided into three specific areas –

Sky Glow- This is the artificial brightening of the night sky caused by water and dust particles in the atmosphere reflecting artificial light. This is most commonly seen as the orange glow over urban areas caused by badly controlled or designed lights shining directly upwards.

Glare- Is an intense and blinding light which causes discomfort. It is often seen against a dark background and often affects the vision of road users creating a hazard. This is mainly caused by poorly designed and maintained lighting.

Light trespass- Is light generally shining where it is neither needed nor wanted, often spilling from properties where the light is located. Poorly controlled exterior lighting shines into neighbouring properties and reduces privacy, can affect sleep patterns and detracts from the appearance of an area.

When restricting obtrusive light great consideration should be given to the control of the light source with less than 1% of direct light above the horizontal for street light and the use of filters or shutters to control and restrict architectural lighting firmly to the feature being lit.

In addition to these requirements areas of special consideration are –

- Airports and Aerodromes
- Railways
- Harbours
- Transport Interchanges
- Navigable Waterways
- Adjacent Unlit Traffic Routes
- Car Parks (both public and privately owned).

In these instances consultation should be given to the relevant authorities to take account of any further special measures needed.

Shielding of Lights

The vast majority of new and modern lights have fully controlled optics in order to restrict light onto the highways or items that are required to be lit. However it is accepted that on occasion intrusion can still occur. Where this has been at the direct result of the council's maintenance or improvement works where possible the light will be shielded by masking off the rear of the

lantern (LED lanterns will not be shielded as they have a sharp restriction of light output). However if the cause is because the issue is outside this i.e. change of occupancy, or room use then the authority has no obligation to shield. In instances where shielding the light will detrimentally affect its output or intended operation then shielding will not be able to be provided on safety grounds e.g. the light is on the opposite side of a road or a considerable distance away from the property. In all occurrences of existing and historical street lights the first responsibility is upon the home or property owner to ensure adequate use of curtains or blinds is made. The council bears no responsibility from a failure on the part of householders to take adequate steps.

Individual shielding requests are decided on by the Street Lighting Department and based on the balance of needs of each location.

Flooding

Unusually the City of York has areas of public highway and paths where flooding is common in winter months. In these locations where possible the units should take account of the possibility of being wholly or partially underwater for several days at a time. As such it is suggested isolation points and supply connections should be located outside the flood plains i.e. connection boxes and isolators at the top of columns or high up on walls, and Pillars out of the plains themselves. No special requirements are actually needed for the lighting levels themselves beyond standard and special area installations. Advice and requirements are given by contacting both the Street Lighting Department and the Flood Risk Manager at the council.

Lighting of Pedestrian Crossings

Pedestrian Crossings are to be lit to conform to the current British Standards (and advisement from EN13201-2:2003) and comply with the advice of The Institute of Lighting Professionals, Technical Report 12 "Lighting of Pedestrian Crossings". Where required; additional lighting units are to be firmly controlled onto the crossing area itself creating a positive contrast of the lighting. Any beacons should be shielded from local properties as to avoid nuisance caused by "flashing" effects. The light sources should be LED's and part of the approved list shown in the appendices. It is assumed that all new crossing will require additional lighting through specific "controlled" units.

Traffic Calming Areas

The lighting of traffic calming areas and feature should take account of the requirement within the Highway (Road Hump) Regulations 1996 section 5. Lighting levels should consider and include any physical calming measures in the highway and comply with current British Standards and best current advice from the ILP.

Subways and Underpasses

Subways and underpasses provide a safe route for pedestrians and cyclists to navigate across busy and dangerous junctions as such they are required to be kept in a safe and passable condition at all times.

Due to the nature of them underpasses need to be lit within the requirements of the British Standards, and should be bright and well lit to encourage their usage day or night.

Consideration should be given to varying the levels of lighting between day and night. This is because a higher level of light is generally required in daylight hours to avoid them appearing dark and special note should be given at entrances and exits to avoid a sudden transition between varying levels of lighting i.e. dark and light. This should make them more attractive to the users and reduce anxiety and the fear of crime in such areas.

Light Sources

Within The City of York over a number of years a vast number of light sources have been in use for various schemes, and are still maintained to this day in existing equipment. The following types are the most common in the city and their attributes are included too-

- Low Pressure Sodium – a monochromatic orange coloured light source that gives a good efficacy (light output in lumens per watt) but has very poor colour rendering (measured in Ra as 0) making even orange coloured items appear different. It also has poor glare characteristics and is very hard to control with the majority of light going straight up or backwards. It has a low life expectancy for the lamp (bulb).
- High Pressure Sodium – a peach coloured light of medium efficacy and a reasonable colour rendering (Ra of 25). It has been popular from the 1980's until recently as it gave good all round performance with a choice of good optical control. The life expectancy of this is good with five years between lamp changes now being experienced.

- Fluorescent – a white coloured source with high colour rendering (above Ra 60) but good efficacy and a low lamp life (as experienced by CYC). It is more commonly used for signage and bollards and has been used to replace soon to be outlawed mercury fittings in the city.
- Metal Halide (including Cosmo) – a white light source of high colour rendering and efficacy with a good lamp life. Similarly to high pressure sodium it has been popular in areas where good lighting and colour recognition is needed i.e. CCTV and central areas.
- LED's- Led's currently offer the best rendering with extreme life and good efficacy. Being a more directional point type of lighting source they offer good control too. This is the choice for the majority of new and improvement schemes in the city.

Selection of Light Sources and Luminaires

For the purpose of street lighting the selection of a source and luminaire will be dependant on application, existing equipment and percentage of lights being replaced, and other special requirements. On all new schemes the light source of choice is LED's with approved models (new installations list), LED specification and adoption requirements (including commuted sums) to be found in the appendices. Should LED's be deemed not capable within the scheme then specific agreements must be reached with the street lighting team and or planning officers in the authority.

Replacement of existing lights should take into account the number and percentage ratio of new lights. Along with the existing type and sources leading the requirements, the usage of the area must also be evaluated to determine if there is any significant change. For example if a road was formerly a high traffic route and is now a closed pedestrian area with the majority of lights needing replacement then it would be better to fully re-design the street. This would give a better level of lighting more applicable for the areas usage. Where as a road of 20 lights with only a few needing replacement would only require the nearest light fitting (in source and style) to the original fitting. Guidance on approved replacement (maintenance) fittings and new fittings can be found in the appendices. Overall decision on models and types will be indicated by the street lighting team.

Columns and Passive Safety

Typically the lighting columns in the authority use range between 6m and 12m in height and depending on location of installation can be of a hinged nature to allow access to the lantern. All columns in the city are to comply with the current standards set in BS EN40-2 2004 Lighting Columns General

requirements and Dimensions. This standard maps the country with respects to wind loadings and terrains that street lights would need to be able to safely resist both in maximum expectation and fatigue. York currently specifies tubular steel columns of a medium rating under the regulations and requires them to be pre coated in gloss black with an anticipated column life of 30 years, and coating life of 25 years. Should signs or other equipment need to be mounted to the column then they are limited typically to an area of 0.3m² and maximum weight of 5 kg. Any items outside these parameters require the columns to be specifically designed to accept greater loadings. The normal method of installation with lighting columns is to bury the root in the ground supported with concrete. However where the ground is soft and unsound or the depths needed can't be met i.e. on bridges then specifically designed methods of installation will be needed. In all cases the method and materials used will be recorded onto the council's asset system.

Where traffic speeds are less than 50 miles per hour or there are a large number of obstructions near or immediately behind lighting columns i.e. buildings, trees, walls etc. Then there is little or no safety advantage to be gained by using a passively safe column. In fact there may be a considerable increase in risk to pedestrians and other road users.

Instead passively safe lighting columns should be used on higher speed roads where risk of death or serious injury from striking a street light is greatly increased. In these situations guidance should be sought from the County Surveyors Society PPR342 "The Use of Passively Safe Sign Posts and Lighting Columns". It is anticipated that "No Energy" columns would be the preferred type of column used manufactured from aluminium. Whilst initial costs may be higher for materials than conventional columns it is anticipated that over the whole life of the installation the cost will be less. This is due to the lower degradation of the materials used (aluminium has and expected 50 year life) and lower replacement needs (columns are socketed into the ground rather than concrete, and have quick disconnect systems reducing the need for electricity board attendance).

Equipment Locations Within the Highway

Lighting equipment and signs as a rule where possible should not obstruct footways. In order to ensure the best possible effect of the lighting and least visual obtrusion columns should be located to the rear of footways and to the recommended minimums set out in the current standards (BS5489-1 2013). If little room is available then consideration should be given to mounting items on neighbouring structures. Consideration should also be given to underground service locations, vehicular access, windows, doors, trees, and highway users (disabled, large vehicles, etc.) The final decisions

on locations of equipment shall be determined by the street lighting department on a combination of all needs.

Switching and Variable Levels of Lighting

Within the City of York the majority of lights are controlled on and off via a photo-electric cell (PECU). Currently all new and the majority of existing PECU's switch at a ratio (LUX) of 35:18 (dusk and dawn). Other equipment is controlled by a time clock, or a remote monitoring system.

Actual levels of light are dictated by the current standards and requirements set out in the appendices, but all new equipment should be compatible with CYC's existing systems and be able to vary their output to ensure that the relevant levels of light required are given at the relevant times.

This ensures that the best use of light and energy is given in all new lighting systems for the city reducing waste.

Maintenance of Lighting Equipment

Statutory Requirements

Currently there is no legal obligation to provide lighting or ensure that it is lit. However the authority is obliged to ensure that any lighting equipment is maintained in a safe condition. As previously mentioned this is governed by legislation such as The Electricity at Work Regulations 1989 and more specifically BS 7671 Requirements For Electrical Installations. These give guidance to safe electrical systems and their protection.

With structural maintenance again there is no statutory requirement other than ensuring an installation is safe. Instead guidance is given by Technical Report 22 of the ILP.

Records and Inventories of Equipment

The Authority currently maintains an electronic record of all lighting equipment (including signs and bollards). This recorded inventory includes any details required to formulate maintenance strategies and energy submissions ranging from individual lamp types, wattages and geographical details. This is all recorded in line with the recommendations of the ILP's Technical Report 22 "Managing a Vital Asset."

Detection of Faults

All faults are received via public reporting either through the council's contact centre or via online methods. Where specific problem areas or

locations are being experienced or highlighted then the council will undertake an inspection for repair. Typically the council does not actively night scout due to current budget restraints. (a night scout is typically a visual inspection via an operative in a vehicle in the hours of darkness to identify if something is lit or not, it is not an in-depth technical investigation.)

When faults are highlighted the authority works to the following overarching targets:-

Category	Description	Response
1	Emergency call-out. Faults causing immediate danger to the public e.g. knock downs or exposed electrical components	Make safe within 2 hours and repair within 4 working days (not necessarily lit, but electrically and structurally safe) ¹
2	High risk faults but with no immediate risk to the public e.g. damaged bollards	Make safe as soon as possible but within 24 hours (maximum). Repair within 4 working days. ¹
3	Outages	Shall be repaired as soon as possible but within a maximum period of 4 working days ¹
4	'Private cable' cable faults	Shall be repaired as soon as possible but within a maximum period of 10 working days. ¹

Faults found to be outside the council's control i.e. mains cable faults are reported to the Distribution Network Operator (DNO) within 24 hours of receipt and are subject to their timescales found here:

http://www.northernpowergrid.com/page/unmetered_standards.cfm

Their usual standards are 20 working days for faults and 35 working days for new connections from receipt of the order or notification.

¹Whilst the authority aims to work within these targets we cannot guarantee on every occasion this will be possible. Where a fault results in the need for a new piece of equipment (involving the DNO), a specialist part, or a re-design of a whole section then the authority will ensure that the equipment is safe and endeavour to rectify at the nearest opportunity.

Electrical Inspections

In accordance with the requirements of BS7671 all electrical equipment is tested every 6 years. The resulting evidence is stored until a new test or alteration is undertaken.

Risk Assessments of Street Lighting Supports

All Street Lighting columns have been inspected in line with the requirements of the ILP's Technical Report 22 Managing a Vital Asset: Lighting Supports. As such each individual column is scored based on condition and given a re-test date based on risk of failure. Methods of testing used currently are visual for concrete columns, and ultrasonic/ din search testing for steel columns (for cracking and section loss) undertaken by a qualified and registered lighting column tester.

Whilst risks are managed we cannot be wholly certain of the condition of a lighting column at all times as such any concerns observed should be brought to the attention of the street lighting department.

Trees, Bushes, and Greenery

In relation to the access maintenance and safety of street lighting equipment careful consideration should be given to the location and type of existing greenery and any proposed planting of new items. In new schemes where possible equipment should be located away from the canopy and root systems of mature trees, this will avoid any obstruction of the light and possible damage from branches. Similarly new trees should not be planted in service margins or the direct vicinity of lighting equipment. The planting of shrubs and other greenery should also be such as to ensure safe access to doors and mechanisms on columns and cabinets alike.

Where an item of greenery on private property encroaches onto the public highway as such to obscure or damage street lighting equipment then it will be considered a "Highway Obstruction" and be required to be cut back or removed. **Failure to comply may result in the council undertaking the works and recharging the costs to the property owner.**

Existing trees and bushes obscuring or damaging equipment may where possible be cut back by suitably qualified persons.

Should any lighting equipment be observed as damaged or obscured by greenery then it should be reported to the street lighting department.

Adoption of Lighting Schemes

In areas required to be lit the City's street lighting policy shall form part of the section 38/ 278 agreement and shall be adhered to. Deviation from this

policy may result in non compliance and therefore the scheme may not be adopted by the authority. All installations and schemes (section 38/278, and other “adoptable” systems) are required to be inspected by CYC Street Lighting. Any costs incurred will be re-cooperated by the Authority.

Standards of Lighting

For all developments the standard of lighting shall be in accordance with the levels set out in the appendices. Typically they shall be as prescribed by the levels of BS5489-1:2013 (see appendices for further guidance.)

Undertaking or Commencement of Works

CYC offer a full Design, Management and Installation Service. New works or alterations on existing highways shall not commence without prior notification to the street lighting team (minimum of 1 calendar month). The developer shall notify the authority of the works proposed and the equipment effected. Whilst the works are in progress the developer shall hold full responsibility for the maintenance of all street lighting equipment within the site boundaries for the full duration. The developer shall also ensure that existing/ safe levels of lighting remain during the course of the project, or until new equipment is operational. Records should be kept and provided to the authority of these works.

Inspection and Handover of Installations

For works and designs undertaken by the street lighting department it shall be considered that they are fully compliant and therefore adoptable without further inspection. All Maintenance and Faults’ liabilities shall be met by CYC on installations undertaken by the street lighting team; however any accidental or 3rd party damages costs will still have to be met by the developer/ promoter of the scheme.

All works and developments undertaken outside the street lighting section (section 38 and 278 works) prior to inspection or handover must undergo any required routine cyclical maintenance i.e. lamp changes after three years, electrical testing to BS7671 after six years (a service CYC offer). The results then will be provided to the street lighting section along with as constructed drawings showing equipment locations, equipment specification (including control gear makes/types), cable plans, specific DNO/ IDNO agreements and if required lighting level readings. Also an inventory of equipment used in relation to their location must be provided. Upon receipt of these the installation will be inspected by CYC Street lighting (costs to be

met by developer/promoter) and any resultant faults or alterations rectified prior to approval. All faults and repairs are the responsibility of the developer until adoption of the lighting system has been approved. Should no plans or inventory of equipment be provided prior to inspection then surveys can be undertaken by the authority at the **cost of the developer**.

No inspections will be done without a prior detailed survey.

Consultation with the authority and other parties

All Highway and development proposals involving external lighting are required to be submitted to the authority for approval. This is required for both areas to be adopted or unadoptable private areas. The reasoning being adoptable areas need to conform to the council's specification and unadoptable areas are required to control lighting as not to be a statutory nuisance through light trespass or spillage. In schemes adjacent or within conservation areas further consultation should be given within the general guidance of "special areas" found earlier in this document.

Commuted Sums Payable

Generally lighting schemes shall comply with this document and its appendices.

Further to the decision handed down in Redrow Homes Ltd v Knowsley MBC at the High Court.

In which Knowsley Council refused to enter into a S38 agreement unless the developer accepted an obligation to pay over a commuted sum of money in respect of post-adoption maintenance costs, so the case turned on whether use of the word "maintenance" in the Section is restricted to maintenance of the roads (or street lighting to be more precise about the case itself) before adoption or can include a period after adoption, i.e. when they are statutorily maintainable at public expense. Both the High Court and the Court of Appeal ruled that the Council's interpretation was correct, namely that the amount that can be demanded for maintenance of the highway is not temporally constrained.

As such CYC requires all new developments and "adoptable" installations provide commuted sums in order to re-cooperate "reasonable" maintenance costs.

The formulae and actual sums structures are to be set out within the overall Highways Commuted Sums for Developments Policy, which is set to be published in the near future. Until then guidance should be sought from the Lighting Department and adoptions officers.

Alternatively to payment of a commuted sum on agreement with the authority the developer may wish to offset the carbon usage at a 50% reduction to the commuted sum by providing a “carbon offset” scheme to the council. *To qualify the scheme must be designed, managed and installed by CYC to current “low energy” requirements, with the funds forming part of the Authorities carbon management programme.*

Network Connections

It is anticipated that the vast majority of new equipment will be fed directly from the DNO/IDNO’s mains cables. Where a private cable network is to be used the design first must be approved and on completion full as constructed drawings provided with calculations and on site testing readings. The majority of mains connection should be provided by the DNO/IDNO, however where the works are considered contestable then a third party Independent Connections Provider (ICP) may be used. The ICP must be accredited and audited by the DNO/IDNO as per the current regulations. Failure to do this will result in the development not being adopted.

Private cable networks should only be used as a last resort and prior agreement to their use and design must be given prior to installation by the street lighting section.

Unmetered Supplies of Energy and Carbon Emissions

The Procurement of Unmetered Energy

Subject to legal procurement rules the authority currently purchases its energy via The Yorkshire Purchasing Organisation (YPO). YPO works on behalf of a number of public bodies and combines their electrical requirements in order to get better prices. Currently the energy provided is described as good quality CHP with a lower carbon impact.

Usage Monitoring and Recording

Unmetered energy supplies are calculated based on an accurate inventory (kept by the authority) that is submitted and agreed with the DNO.

In addition to this the number of hours that the lights are deemed to be lit is measured by either a nationally recognised number or measured by an array of photo voltaic cells. The array is populated with cells that are typical of use by the authority and the measured on and off times are sent via a data stream to the electricity companies. This measurement is then used to calculate the amount of energy used.

Carbon Reduction

The City of York Council is committed to reducing carbon emissions across the authority as a whole and as such has targeted street lighting to cut emissions by 25% by 2015.

This is being and has been done by a number of strategies and schemes as follows:-

- Trimming of cells- Photocell traditionally had turn on and off levels of (lux) 70:35. This was taken typically to allow equipment to start and “warm up” prior to sunset. Modern electronic equipment takes far less time to “warm up” and in some cases full efficiency is instant. Because of this the authority changed the vast majority of its PECU’s to a 35:18 (lux) regime cutting the hours lit and energy used.
- Use of innovative technologies and electronics – Within the last five years the pace of development and innovation in lighting technologies has accelerated allowing the authority to consider novel approaches to lighting the public highway. Electronic control gear and LED’s have lead the way enabling the authority to better light the highway with less energy in a more applicable way.
- Variance of lighting levels – Until recently when lighting a highway the levels of light set under British standards took account of peak usage or needs of that particular area, with the measured level being at the time of routine maintenance i.e. lowest amount of light output from a lamp. As such this means for the majority of the time it is lit, a lighting scheme is at a far higher level than needed. Changes in design standards and technology mean that the authority are now able to light a highway to the applicable standards required at the applicable time in a cost effective manner. This allows the authority to reduce wastage in an effective manner.
- De-Illumination of signs and bollards – The Traffic Signs Regulations and General Directions 2002 (TSRGD) and subsequent amendments sets out the requirements for signs and bollards to be lit in the public highway. Following a number of studies into safety and visibility the requirements have been relaxed and as such a large amount of equipment no longer requires lighting. In these cases the council aims to remove and de-illuminate redundant equipment. This not only reduces the energy usage, but reduces safety liabilities from electrical equipment.

- Renewable energy equipment – currently where a bollard (keep left/right, no-entry) is required to be lit the authority replaces it with a solar powered unit. This cuts the energy requirements to zero and reduces safety implications from mains electric. We are also currently evaluation solar sign lights as well as trialling solar bus stop and footpath lighting to evaluate its effectiveness.

Appendix 1

Environmental Zones Within City of York Boundaries

For the purposes of the design of all new lighting installations and control of light pollution within the authority, York will fall into the Environmental Zones E2, E3, E4 as set out within The ILP's Guidance Notes on the Reduction of Obtrusive Light.

Typically the areas can be described as follows:-

E4- Areas of High District Brightness

These are areas of high night time activity normally described as town centres. In York this should be considered as areas similar to Coney Street, Parliament Street, and Micklegate where there are high levels of shopping, through footfall and evening entertainment.

E3 – Areas of Medium District Brightness

Small centres and suburban locations best fit this criteria, It is anticipated that the vast majority of the city will fall into this category with large conurbations such as Acomb, Clifton, and Woodthorpe being good examples.

E4 – Areas of Low District Brightness

Small Villages and rural areas fall into this category. By their very nature the lighting in these places will be minimal and tightly restricted.

Any areas outside the above parameters would be considered as below the requirements for lighting. Although given as a guide the above zones may not blanket cover wide areas. For example within the historic core there is a large mixture of well lit open areas surrounded by darker pathways and ginnels. As such careful consideration must be given to the control of light in these adjacent areas along with upward light spill. In these instances guidance should be sought from the Street Lighting Department.

The following parameters give the obtrusive light limitations for these zones.

Environmental Zone	Sky Glow ULR (max %)	Light Intrusion (into Windows E_v (lux)		Luminous Intensity I (candelas)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L (cd/m^2)
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15.0	25	5	25,000	2,500	25

(further information and guidance can be found in “Guidance Notes for the Reduction of Obtrusive Light GN01” from the ILP).

Typical Lighting Class Selection in York

Generally new schemes should follow the guidance given within BS5489-1 :2013. All Schemes should take advantage of the ability to vary levels and classifications to reflect the requirements at any particular time.

For consideration in residential areas the typical height for columns should be taken as 6m and the light source LED. As such classifications should be taken from tables A.5 or A.6 of the standard utilising “P” classifications.

Typically the majority of suburban residential streets will be P4 dropping to P5 between midnight and 6 AM.

Traffic routes should be lit by the luminance method and governed by the levels set out in BS5489- 1 :2013 tables A.2 and A.3 with the vast majority of areas falling within table A.3. **It is anticipated that at peak times most major traffic routes will exceed 65% capacity in the city and fall within the M3 classification.** On traffic routes it is advisable to consider the use of variable lighting levels however in some very central areas this may not be possible e.g. sections of Bootham, Gillygate, Blossom Street. Advice should be sought from the lighting team for suggested levels required.

Conflict Areas likewise are to be dictated by table A.4 of BS5489 with particular emphasis on exceeding the 0.4 U_o minimum.

Other Areas

Other specific areas to be lit within the public realm should follow the guidance given within BS5489, however particular emphasis should be

made to improve on minimum uniformity levels set. For example in public car parks the average illuminance would be expected of 20 lux and a minimum uniformity should exceed 0.25. The authority would consider it more reasonable due to the requirements to be able to recognise objects both in and out of vehicles along with reducing crime and the fear of crime for the U_0 levels to exceed 0.4.

Appendix 2

Standard Maintenance Range of Associated Street Lighting Equipment

Item	Manufacturer	Model
Column & Paint system		Galvanised steel or aluminium to EN40 medium grade with Permoglaze PPA 571 Gloss Colour Black RAL 9005 (30 Year Life) and a minimum G2 root coat spec.
Illuminated Traffic Bollards	Pudsey Diamond	Solarbol
Illuminated Traffic Signs	Signature/Simmons	Delta(LED) or LUA LED
	Indo	Retro fit LED lamp.
Zebra Crossing Beacon	Signature	3 white/black bands with, yellow globe with Led flash, post 3.1m height above ground level with planted foundation.
Centre Island Beacon	Signature Safe Post	2 white/black bands, opal LED globe, post Hinged 4.7m length, 3.8m height above ground level with planted foundation.
Feeder Pillars	Haldo Lucy Zodion	Pillar with Tri-head Screw
Photo Cell	Lucy Zodion	SS3 35/18 one part PECU mounted in Nema socket
Cut Outs	Lucy Zodion	DPI with BS 88 Fuse(s). Cut out to be rated up to 32A
Underground Cable	Various	XLPE / SWA / PVC 3 Core Copper Cable

Standard Maintenance Range of Street Lighting Lanterns

Manufacturer	Model	Mounting Height	Lamp Wattage	Source
DW Windsor	Windsor Street heritage	All	All	LED
Holophane	QSS	All	All	SON/T+ CDO/TT

Holophane	QSM (IP54 Sealed)	All	All	SON/T+ CDO/TT
Holophane	QSS	All	Up to 150W	SON/T+
Orangetek	Terraed mini CYC preferred residential	All	24 LED	LED
Orangetek	Arialed	All	Various	LED
Holophane	Vector CYC preferred Road class	All	Above 8m	LED

Standard Range of Design and New Scheme Lanterns

Manufacturer	Model	Mounting Height	Lamp Wattage	Source
Orangetek	Teraled Mini	5m, 6m	24 LED	LED
	Arialed	5m, 6m, 8m, 10m	Various	LED
DW Windsor	Windsor	5m, 6m	Various	LED
Holophane	Vector	8m, 10m, 12m	Various	LED

Further to the above

All columns are to be secondary Isolated with the 32 A isolator rated at IP33 with a 4 A BS88 MD fuse. Lanterns are to be pre-wired 1.5mm t&e cable or flex to BS 6004 to the DPI. Between the DNO cut out and the DPI the cable is to be 2.5mm single and an earthing block supplied separate with a “safety electrical connection” tag. Earth bonding is to be 6mm green and yellow.

On section 38/ 278 developments/schemes where underground DNO cables are required to be installed in ducting to the required locations the ducting must be black as per DNO specification.

If any street lighting is to be cabled privately due to any constraints of locations, the cables must be SWA XLPE and in Orange ducting as per street lighting requirements. This scenario should only be undertaken when DNO services cannot be achieved and must be authorised by City of York council street lighting department.

The above lists are not exhaustive and alternatives that meet or exceed the current standard of equipment may be used upon agreement with the street lighting team. Discussions should be sought prior to design and installation with agreements on materials potentially negating part of the requirements for commuted sums.

For further guidance contact the Street Lighting Team.

CYC are currently evaluating new LED lanterns in both traditional replica styles and for ME category roads. The attached lists are not exhaustive and subject to change at any time by the authority in retaliation to improvements in technology, financial constraints and regulatory changes e.g. relaxation of rules within the TSRGD for 2015.