

**NOTES FOR GUIDANCE AND INFORMATION
DOCUMENT FOR NEW OR REPLACEMENT
STREET LIGHTING SCHEMES.**

**STREET LIGHTING
POLICY DOCUMENT 3**

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1) INTRODUCTION

Bath and North East Somerset Council recognizes that street lighting is important to Householders, Parish Councils, Residents Associations and Motorists. It is important as amenity lighting; for security reasons; to assist in the reduction of crime; the reduction of the fear of crime; and as a measure to assist with the reduction of night time accidents.

At times it is necessary for a street lighting system to be installed or replaced and we thought you would like to know more about the process.

This document only deals with schemes of a significant nature. It does not deal with minor replacements or emergency work undertaken immediately in the interest of safety.

This documentation has been produced by the Transportation and Highways Service and was approved by the Planning Transportation and Environment Committee of Bath and North East Somerset Council on 20 January 2000. A Periodic review of this Policy was last undertaken during December 2010 (Issue 1.3).

This policy outlines the basic principles and standards applying to Street Lighting in Bath and North East Somerset Council's area. It sets out the aims of the Authority with respect to lighting schemes and the approaches it will take in order to achieve those aims. The overall objective is to produce schemes which, as far as possible satisfy engineering, conservation and environmental requirements whilst benefiting local communities.

The Main Aims are

- To Promote and maintain safety for all users of the highway during the hours of darkness, with special consideration for all vulnerable user groups (e.g. pedestrians, cyclists, the elderly, the disabled and children).
- To aid in the reduction of night time accidents.
- To aid the police in the reduction of night time crime and the reduction of the fear of crime.
- To enhance the day time and night time environment.
- To avoid environmental intrusion, which includes the minimizing of light pollution and to have regard for the aesthetic impact.

2) LEGAL POWERS FOR LIGHTING HIGHWAYS

The primary responsibility for Street Lighting lies with the Highway Authority. Lighting Authorities (such as Parish or Town Councils) may maintain footway lighting (i.e. pavement) defined by reference to the height and spacing of lamp standards. They may also exercise other lighting powers with the consent of the Highway Authority

The Local Government Act 1966 transferred responsibility for street lighting from Rural District Councils, Parish Councils or Parish meetings (Public Health Act 1875 or the Parish Councils Act 1957) to the Highway Authority.

The Act also deprived Parish and District Councils of the power to provide lighting on Adopted Highways (Irrespective of standards) unless the consent of the Highway Authority was first obtained.

The 1966 Act has now been repealed by section 343(3) of the Highways Act 1980, and replaced with section 97 and 98 of the Highways Act 1980, which clearly states the following.

Highway Authorities may provide lighting for the purposes of any Highway or proposed Highway for which they are or will be the Highway Authority.

Highway Authorities may agree with a Lighting Authority for delegation to the Lighting Authority of any function of the Highway Authority with respect to the lighting of any highway or part of a highway within their parish.

The Lighting Authority shall in the discharge of any function delegated to them act as agents to the Highway Authority and it shall be condition of the delegation that: -

- a) The works to be executed or expenditure incurred by the Lighting Authority in the discharge of the delegated function are to be subject to the approval of the Highway Authority.
- b) The Lighting Authority are to comply with any requirement of the Highway Authority as to the manner in which any such works are to be carried out, and with any directions of the Highway Authority as to the terms of contract to be entered into for the purposes of the discharge of the delegated functions; and
- c) Any such works are to be completed to the satisfaction of the Highway Authority.

If at any time the Highway Authority are satisfied that a system in respect of which functions of that authority are delegated under this section is not in proper repair or condition, they may give notice to the Lighting Authority requiring them to place it in proper repair or condition. And if the notice is not complied with within a reasonable time may themselves do anything which seems to them necessary to place the system in proper repair or condition.

It should also be noted that such delegation of function can be terminated upon the Highway Authority giving notice. The ability to do so is subject to certain limitations concerning when such notice can be given.

3) BENEFITS OF GOOD ROAD LIGHTING

Lighting makes an important contribution to highway safety for both drivers and pedestrians. It can add to the quality of life and can enhance the appearance and vitality of an area.

3.1 LIGHTING FOR REDUCTION OF ACCIDENTS

Extensive studies have shown that street lighting is a major factor in improving road safety. The Department of Transport has proven the better our roads are lit, the greater will be the reduction in accidents. The General Summary of the collected data clearly shows that good lighting can reduce night-time accidents by up to 30% on our roads and up to 50% on our Motorway Network.

Our roads are changing in character. They are carrying greater volumes of traffic at even faster speeds and the driving population is becoming older. Inevitably these factors have led to an increase in accidents and deaths. Most people feel safer when driving at night if the roads are lit. Visibility is improved allowing judgements to be made sooner and generally it leads to less intense driving.

The latest figures (June 2003 table 4c) from The Department of Transport show the costs of accidents on our roads:-

Fatality	=	£1,518,160
Serious injury	=	£ 180,040
Slight injury	=	£ 17,840
All injury	=	£ 78,360
Damage only	=	£ 1,520
Average value	=	£ 101,060
(inc damage only allowance)		

The above figures take into account all costs associated with an accident including Emergency Services, Hospital treatment, Court cases, and traffic disruption. :

The current cost of installing 1 mile of lighting on a Principal Road is £56,000 with an operation cost of £2,850 year.

All the above data enables a simple cost/benefit calculation of the value of street lighting as an accident saving measure.

If one accident is prevented in the next 25 years by lighting ½ mile of road, the scheme would pay for itself. A second accident prevented on the same ½ mile of road would be an added benefit.

3.2 LIGHTING FOR REDUCTION OF CRIME AND REDUCTION OF THE FEAR OF CRIME

Street lighting also plays a significant part in reducing crime and, just as importantly, reduction of the fear of crime. Extensive research since the late 1980's is documented in two Home Office publications ("The influence of street lighting on crime and the fear of crime" and "The effects of better street lighting on crime and fear: a review"). More recently further research has looked at cost benefit from the initial capital cost of the installation to the savings made in time spent dealing with insurance claims and police time.

The energy crisis in 1974 saw the introduction of the three-day working week as an energy saving measure and street lighting was switched off. The Lighting Lobby had the foresight to keep records of the incidence of reported crime. In Brighton, the Sussex Police reported a 100% increase in burglary compared to the previous year. In Preston there was an overall increase in crime of 55% during the blackout. This was probably the first valid data showing the effect of the absence of lighting, on crime against property. Studies in the USA in the late 70s confirmed these findings. The 80s, saw a rise in crime against people and this, together with the riots in the Inner Cities, made people look again at the value of outdoor lighting. If it deterred theft could it also deter attacks or threatening behaviour on our streets? The experts were convinced but proof was needed.

In 1987 a series of controlled studies started investigating the effect of street lighting on crime. In a controlled area street interviews were carried out before and after the lighting was improved. The 'before' interviews revealed a fear of crime, to the point where some of those interviewed admitted to carrying what would be regarded as an offensive weapon. In the 'after' interviews, carried out a short while after the lighting was improved, over 80% of those questioned mentioned this without prompting and there was a reduction in both actual crimes and the fear of crime. So positive was the result from the first two studies that they were repeated in all our major cities. Firm evidence is now available to show that good Street Lighting can reduce the number of acts of crime, increase the numbers of pedestrians on the street and reduce the fear of crime.

Crime statistics only record the number of reported incidents and it is known that this underestimates the true number by up to 4 times. What they will never show is how widespread the fear of crime is. If people are frightened to go out of their homes, there are fewer people on the street. The fewer people on the street, the less public surveillance there is and the less public surveillance there is the higher the probability of an offence being committed. Reduce the fear of crime and we break this cycle. Lighting can break this cycle, get people back out onto our streets at night and prevent us turning into a fortress society.

But what is good Street Lighting?

Pedestrians need to be able to see and be seen; and need to be able to recognize a potential attacker in time to take evasive action. This means good facial recognition at a distance of at least 10m. Lighting must therefore be designed to aid this recognition. Unfortunately we are suffering from the legacy of the early days of street lighting.

Whilst the equipment has improved enormously, it is often mounted at positions that can date back to the early days of gas lighting. Pools of light are followed by dark gaps where any sort of recognition is impossible. The solution is not cheap because improvement in visibility usually means reducing the spacing between columns. This can involve replacing an entire infrastructure over many miles of roads. Improvements can only take place if people are bold enough to make decisions and design for the future.

4) CONCEPTS OF GOOD DESIGN PRACTICE

4.1 GENERAL DESIGN CONSIDERATION

How can we ensure that a lighting design solution chosen provides the best overall value whilst achieving excellence in lighting design?

Good lighting design is not simply a case of selecting a light from a catalogue or obtaining lighting levels from a computer. A multitude of different considerations should all form part of the design process and some of these are:-

1. Determine the requirements of the customer or end user,
2. Can we provide a solution that is environmentally friendly for day time and night time environments which also minimises sky glow?
3. Energy consumption/savings,
4. Life costing,
5. Safety,
6. Performance and reliability.

Groups which have an impact on and interest in the design of street lighting include: Parish Councils, Residents, Heritage societies, Astronomers, The Highway Authority and Lighting Engineers and often a compromise is necessary to try and satisfy them all.

4.2 HEIGHT, SPACE AND ARRANGEMENT RATIO

Many people ask why the new columns are taller than the old ones?. The reasons are advances in design and modern lighting requirements.

To achieve modern lighting requirements in terms of levels of and uniformity of light, it would be necessary to place lower height columns at more frequent intervals than higher columns. This would increase both visual clutter and obstructions on the street; increase the number of assets to be maintained and cost more in energy terms. All of these factors have negative implications in terms of cost and the environment. Thus it can be seen that taller columns are both more cost effective and more environmentally friendly.

4.3 COMMONLY USED LIGHT SOURCES

Two main light sources are currently used for street lighting:-

- Low Pressure Sodium
- High Pressure Sodium

Low Pressure Sodium

This produces a monochromatic light source covering a very narrow band within the yellow range on the electromagnetic spectrum that glows orange. Colours seen under this type of light will only appear as shades of orange or black.

However, this type of lamp is highly energy efficient producing 123 -200 lumens per watt.

High Pressure Sodium

This produces light that covers all ranges within the electromagnetic spectrum thus improving colour rendition. This means that colours are seen normally and visual recognition is significantly improved.

This type of lamp is still relatively energy efficient producing 80-138 lumens per watt.

4.4 RELEVANT PUBLICATIONS

There are a number of guidance documents, advice notes and British and European Standards that should be complied with for all new or existing designs. These are as follows:-

BS 5489-1&2:2003+A2:2008 Code of Practice for the Design of Road Lighting.
European Standard BS EN 13201-2,3&4:2003 Road Lighting.

The above document's covers all aspects of road lighting design from Motorways to subsidiary roads and includes the lighting of all junctions, roundabouts and pedestrian areas.

The document sets good practice for the lighting of all the above ensuring appropriate light levels.

Road lighting designed to meet the standards set out in BS 5489 is likely to require lighting units spaced regularly at around 30-40 metres.

Where possible all new or replacement schemes installed by the Authority will be based on this recognized code of practice.

Institution of Lighting Engineers, Guidance Notes for the Reduction of Light Pollution

This guidance note gives examples of good and bad practice in lighting installations, includes simple diagrammatic examples of such installations, and explains the concept of environmental zoning including the amount of upward light acceptable within these zones whether they be towns/cities or rural villages

This documentation will be considered when new or replacement schemes are carried out.

5) AESTHETICS / VISUAL APPEARANCE

5.1 GENERAL PRACTICE

When siting columns the preferred location, wherever possible, is between houses, between drives or on the house side of the drive. Although this is not always possible. Columns are normally sited at the back of footways or in verges. This is intended both to minimise obstruction to the footway and also possible damage to columns from vehicle impact.

5.2 BUILT HERITAGE AND CONSERVATION CONSIDERATIONS

BANES contains a rich variety of historic buildings and landscapes which impart a strong sense of place and regional identity. Bath is a world heritage site and approximately 66% of the city is designated a conservation area. Outside Bath are 34 conservation areas which include villages, hamlets and historic towns such as Radstock and Keynsham. It is the responsibility of the Council to protect these conservation areas by refusing poorly designed improvements and development. Any scheme which proposes light fixtures either attached to listed buildings, or within their curtilage, will require listed building consent. Other factors to be considered when introducing new or replacement street lighting into these areas are authenticity, suitability, light levels, positioning, height, design of the fittings and the colour produced by the light source.

5.3 URBAN DESIGN / STREET SCAPE CONSIDERATIONS

The character of areas being lit varies dramatically and therefore the design solution should also vary accordingly. Whilst all parts of the district are equally important, there has been a particular interest in town centres which has spawned the development of projects that aimed at defining a “streetscape” character. This aims to adopt street furniture and lighting units which are attractive, modern, functionally appropriate and consistently applied to whole areas over a period of time.

5.4 ENVIRONMENTAL CONSIDERATIONS

There has been a lot of publicity recently about light pollution that is becoming increasingly bad in the developed world. US satellite data, collected by the Council for the Protection of Rural England, now shows that there are few places left in Britain where people can get a clear view of the night sky. In the past seven years, light pollution has increased by 24%, and an eerie orange glow from artificial light has spread over more than two thirds of the land. Large swathes of the Midlands and the Lake District which only a few years ago were black at night now glow in the dark; and only people in the highlands and islands of Scotland, the Borders, mid Wales and parts of the West Country really know the grandeur and beauty of the night.

Bath & North East Somerset recognize this as a serious environmental problem and make every effort to limit light pollution when installing new or replacement lighting. By using equipment which eliminates direct upward light whilst ensuring roads and pavements are well lit.

5.5 ATTACHMENT OF STREET LIGHTS TO BUILDING / WAYLEAVES

Where scheme designs identify proposed lighting being fixed to a building an approach will be made to the affected house/houses using a standard wayleave agreement under the Public Health Act 1961 section 45.

5.6 FUNDING 3RD PARTY CONTRIBUTIONS

A 3rd party contribution would be required from residents/parishes who after consultation propose extra or different equipment, such as ornamental style lanterns or detailed embellishment on columns, to that identified by the Council as being an appropriate solution for a scheme.

6) IDENTIFICATION / PRIORITISATION OF SCHEMES

There are two sources of funding for new lighting schemes; Capital and Revenue.

6.1 CAPITAL

This is primarily used when requests for new or improved lighting are received from Residents, Parish Councils or Council Members.

Details of the criteria and process used for this evaluation can be found in Street Lighting (Policy Document 2) “Priority Criteria Assessments for Evaluation of New or Improved Street Lighting Schemes”

6.2 REVENUE

This source of funding is used for maintenance and replacement of existing assets.

The street lighting contractor undertakes an annual inspection of every street light and illuminated traffic sign / bollard within the Council’s area. All assets are checked for electrical safety and structural stability. The results are recorded and evaluated by the council staff to establish a programme of works and to ensure appropriate action is taken to maintain the assets in a safe condition.

The programmes provide the basis of any major replacement schemes arising from this process and usually occur when the assets are in excess of their expected life which is 25 Years.

7) FREQUENTLY ASKED QUESTIONS

Why is replacement necessary?

Usually because some of the existing lighting is in a bad structural condition through age. Also the lighting may keep failing due to the electrical condition of the assets or it may be that the illumination levels do not meet modern requirements

How is a new scheme installed?

Locations for the new streetlights are marked out on the ground and the new columns installed. Once the new lights are connected the old columns are removed?

Why are the new street lights in different positions to the old ones?

Present day codes of practice and provision of appropriate levels of illumination require street lights to be more closely spaced. This results in different positions for the new columns.

Is there a policy about where columns are located?

The Council aims to position columns between houses, between drives or on the house side of the drive, although this is not always possible. Columns are normally sited at the back of footways or in verges. This minimises obstruction on the footway and helps prevent damage to columns and vehicles.

Does anybody check the column positions before they are put up?

Every column position is checked on site to make sure that access to houses and commercial premises is not obstructed.

Why is there a delay between putting up new street lights and taking out the old ones?

Connections and disconnections to new street lights are the responsibility of the Distribution Network Operator (Western Power Distribution). The timescales they apply to street light connections are longer than those applied to connections to buildings.

What happens to the excavated area adjacent to the new street lighting columns?

A temporary reinstatement is carried out to existing ground level and once all electrical connections have been made and redundant columns removed, a permanent reinstatement is carried out.

To report street lighting faults

Faults should be reported via the Council Connect the number is **(01225) 394041**.

It helps greatly if when reporting a fault you provide the column identification number, and/or an accurate geographical location, (i.e. outside house No. 2, Station Road, Midsomer Norton). This enables us to deal with the faulty lamp quickly and efficiently.

Remember that you can also report defective illuminated and non-illuminated traffic signs and bollards, on this number.

What happens next?

General Maintenance faults that have been reported are normally attended to within the following 5 working days. Usually most street lamps will be operational again after the first visit.

If the fault is within the underground Western Power Distribution electrical supply then repairs can take, on average, up to 10 days longer to correct. Similarly, if the lighting column has been damaged in a road traffic accident, repairs take longer.

How do I get more information?

In the first instance you should contact the Street Lighting Section, whose Officers are responsible for street lighting. They can be contacted directly on **(01225) 394263**.

8) SCHEME SPECIFIC INFORMATION

This pack consists of a series of appendices, which explain the various solutions available for relighting a specific chosen area.

The pack includes the following: -

1. Scheme specific details information sheet
2. Detailed scheme plans of locations of existing assets
3. Detailed scheme plans of locations of proposed assets
4. Estimated cost for design solution(s)
5. Colour pictures of similar installations and equipment
6. Timetable of proposed dates
7. Copy of any comments received from Built Heritage

On receipt and reading of the information in this pack please disseminate the contents to local residents. Any comments should be made to the council either in writing or by telephoning 01225 394263.

9) CONTACT LIST

CONTACTS

Matthew Smith, Divisional Director, Environmental Services	01225 394128
Kelvin Packer, Highway Network Manager	01225 394339
Keith Showering, Team Leader, Highway Electrical & ITS	01225 394342
Charles Jones, Street Lighting Engineer	01225 395157

10) APPENDICIES

APPENDIX DESCRIPTION	ENCLOSED
1. Scheme specific details information sheet	YES/NO
2. Detailed scheme plans of locations of existing assets	YES/NO
3. Detailed scheme plans of locations of proposed assets	YES/NO
4. Estimated cost for design solution(s)	YES/NO
5. Colour pictures of similar installation and type of equipment	YES/NO
6. Timetable of proposed dates	YES/NO
7. Copy of any comments received from Built Heritage	YES/NO

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