



STREET LIGHTING POLICY FOR PERTH AND KINROSS COUNCIL

"Right light in the right place at the right time"

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Introduction

The provision of a street lighting service on the public roads and footpaths throughout the Council area is generally taken for granted nowadays and is seen as a basic service that the local authority should provide to its citizens.

Under current legislation, the responsibility to provide street lighting within Perth & Kinross is given to the Council as the statutory local roads authority. Section 35, of the Roads (Scotland) Act 1984, (RSA 1984), sets out the powers and duties covered by this legislation. The act does not directly impose an obligation on the Council to provide street lighting. It does however require that the Council to consider what lighting is appropriate in terms of road safety and accident reduction. Once street lighting has been provided, it is the Council's statutory duty to ensure that it is functioning correctly and inspected and maintained to a safe standard.

It has been demonstrated through a number of National acclaimed research projects that in addition to improved road safety and accident reduction, good quality and well maintained street lighting also has a positive effect as a deterrent against crime and reduces the public's fear of becoming a victim of crime. There is however no statutory duty or adequate funding in place to provide lighting for this purpose alone.

There are several benefits of providing an effective street lighting service which are linked and support the Council's corporate objectives relating to Road Safety, community safety, social inclusion and quality of life including:

- To prevent night time personal injury accidents
- Reduce street crime
- Reduce the fear of crime
- Promote sustainable transport (public transport, cycling and walking)
- Facilitate social inclusion by providing freedom to use streets after dark
- Support the 24 hour leisure economy, promoting economic development
- Provide safe access to educational facilities supporting life long learning
- Assist emergency services to identify locations and shorten response times

An effective street lighting service contributes significantly to the following:

- Making Perth & Kinross Council one of the leading green authorities in Scotland
- Improving local conditions for economic development
- Improving community safety
- Targeting support to vulnerable communities
- Making Perth & Kinross Council a top performing Council

Energy consumption and carbon reduction agenda is of growing importance in day to day society and the aim of this Policy document is to put in place a strategy for providing an effective modern day street lighting service which takes account of the following key factors:

- rising energy costs
- nuisance potential from light pollution
- environmental impact in the form of greenhouse gases (CO₂)

The reduction of CO2 emissions is seen to be as important as potential financial savings and this has been echoed in recently introduced CRCEE legislation which will impose penalties on Councils failing to meet their carbon reduction targets.

1) Where We Light

Lighting has been shown to be effective as a road safety measure and as a deterrent to crime. As mentioned above, the Council as Roads Authority has to determine where it is necessary to provide and maintain lighting on public roads. Equally, the Council also has a duty of care in other public areas and therefore, lighting is also to be provided and maintained by the Council in many non-road areas as appropriate.

Guidance for the design of street lighting is offered by British Standard, BS 5489 supported by BS EN 13201 which set out design and measurement methods. It should be noted that these standards are not compulsory.

The standard of lighting in the British Standard categorises the roads on the basis of usage and environmental factors. These categories are used as headings in the following proposals:

Traffic Routes

In Perth & Kinross Council the only roads meeting the criteria for traffic routes lighting are the defined Traffic Sensitive and Strategic Routes plus a small number of additional routes.

Lighting only to be provided within speed controlled areas i.e. urban areas. De-restricted areas are not normally lit, however areas with special requirements e.g. accident black spot, will be considered on their own merits for a site-specific treatment.

Subsidiary Roads – Adopted Roads and Footpaths (Council List of Roads)

Generally any adopted road within an urban area will be lit. Refusal to install or removal of lights in an urban area must be justified on a site-specific basis.

Subsidiary Roads – Non -Adopted Roads and Footpaths (Council Owned)

Such roads will be treated as adopted roads.

Subsidiary Roads – Non -Adopted Roads and Footpaths (Private Roads)

These are private roads with no Council ownership / responsibility. No new lighting will be provided on private roads. Any existing lighting removed on apparatus public safety grounds will not normally be replaced.

Non Road Areas – Car Parks and other Council Areas (Council Owned)

Lighting provision in these areas will generally follow the precedent for road lighting i.e. if area served by a lit road, lighting will also be provided. Maintenance cost would be recharged to the appropriate Council Service.

Non Road Areas – Private Areas

No lighting to be provided and any existing street lighting presently maintained by the council to be removed as and when appropriate.

2) Operational and Service Delivery

Since the 1st April 2006, street lighting services for both Dundee City and Perth & Kinross have been delivered through a joint shared services approach through the Street Lighting Partnership. The partnership has been a great success and has managed to streamline administration, reduce duplication and demonstrate a Best Value approach against a set of strategic performance criteria.

Operational delivery of the service is by means of an integrated organisation comprising Tayside Contracts, Dundee City and Perth and Kinross street lighting employees.

Responsibility for the service delivery is through a Partnership Board consisting of Officers from the Dundee City Council, Perth & Kinross Councils and Tayside Contracts.

2.1 Health & Safety and Competency

The Street Lighting Partnership operates and is approved to National Highway Sector Scheme. The scheme is made up of two parts, QA Registration to ISO 9001 and Registration of Competent Persons. Sector Schemes cover a full range of equipment and services required on the Highway for those that are installing and maintaining services. The scheme has a strong element of training and ongoing competence assessments to reduce personal injury and accidents.

2.2 Inventory and Asset Management Systems

The WDM licensed database of Perth & Kinross Council's street lighting asset data is part of the Asset Management system. The database holds extensive details of all the units including geographical locations. The Councils Customer Service Centre uses this system to identify and log fault reports from the public.

The Lighting Management System (LMS) which is part of WDM is a useful management tool and provides an extensive range of management reports. These include age/condition of the asset, energy consumption, electrical testing data, performance indicators and financial information. A full audit trail of inspections, repairs and replacements can also be accessed.

Records of underground lighting cables are held as hard copies backed up by AutoCAD drawings. This information is being converted and saved to the LMS database so that Utility plant enquiries could eventually be serviced on line. The operational nature of this data means that it is checked and updated on an ongoing basis. This regular checking gives confidence in the reliability of the data.

A more detailed explanation of how the asset is managed is recorded in the Street Lighting status report which forms part of the overall Road Asset Management Plan

(RAMP). The status report also contains a status on the condition of the asset and a valuation report prepared against recently introduced CIPFA Guidelines.

2.3 Links to other Policies

The Sustainable Lighting Strategy for Perth and Kinross Council is currently being updated to help promote the character of Perth City and enhance the public realm.

The aim of the strategy is to reinforce the atmospheric nature and character within the city, improving the balance between lighting and darkness, and provide a safe environment for its use and enjoyment by achieving coherent lighting schemes that are well conceived, designed and maintained.

This policy should be considered alongside the Sustainable Lighting Strategy for all new Road Lighting installations.

3) Standards and Quality of Lighting

Lighting is designed to meet the standards recommended in BS5489. The level of light can be varied over time to suit the usage of the area to be lit. The 'quality' of light provided also varies to suit the location. All lighting designs must be carried out and approved by appropriately qualified engineers who hold the Institution of Lighting Professionals Lighting diploma or equivalent.

The following key themes have been gathered from either local consultation or information gathered through national and regional consultation. This information has been used to influence the proposals on lighting policy:

- The residents of Perth & Kinross Council feel safer with white light
- The quality of lighting matters more to pedestrians and residents than to vehicular traffic
- Varying lighting levels to match the usage of an area is acceptable
- The minimum lighting standards recommended in BS5489 are adequate for general security

3.1 Lighting Sources / Types

Recent improvements in technology has resulted in more availability for energy efficient street lights such as LED. There are however a number of inefficient lanterns (namely SOX & SON) currently installed throughout the Perth and Kinross Council area. The street lighting asset is made up of the following lamp types:

Lamp Type	Number
SOX	10335
SON	9255
Metal Halide	524
Fluorescent	3667
LED	1325

3.2 Lighting Levels

Lighting Levels are recommended based on the nature and usage of an area. The lighting levels will meet the requirements and standards of BS5489.

Influencing Factors

- National consultation exercises has shown that the quality of lighting is much more significant than the quantity. Quality lighting is characterised by its uniformity and colour rendering ability.
- The principle employed are to provide a suitable base level in all lit areas and increase the levels in areas and at times when the usage dictates.
- No reduction in lighting levels or adaptable lighting levels within high amenity areas e.g. town centre or shopping districts is planned.

3.3 Electronic Control Gear

Street lighting lanterns contain control gear to allow the lamps to operate correctly. Traditionally this was electromagnetic which has relatively high energy losses. All new white light and LED lanterns are now specified with electronic control gear which reduces these losses and hence energy used and contributes to an extended lamp life.

3.4 Photocells

Switching on and off times of lighting is generally controlled by a photocell that brings the lights on when the level of daylight drops below a pre-set level and switches them off again the next day when the level of daylight increases. Photocells used in Perth & Kinross Council have traditionally been calibrated to switch on at 70 lux and off at 35 lux. This figure was set to allow some of the older style low pressure (orange) lamp technology to run up to full brightness. The modern LED and white light replacement lamps now take a much shorter period to run up to full brightness. It is therefore proposed to carry out trials to review the lux level of switch on/off. It is hoped that declared annual burning/operating hours can be reduced which will reduce overall energy consumption and the Councils Carbon Footprint.

3.5 Variable Road Lighting Levels (Dimming)

Electronic control gear now comes with the ability to vary the light output of the lamp as standard. It is proposed to introduce variable lighting technology. Lanterns shall be provided with pre-set single step dimming control. The luminaires shall be dimmed by 30% between midnight and 06.00am.

Other switching times and levels will be considered and used as appropriate. Lighting Designers will however ensure on a site by site basis that any reduced levels of lighting will meet the minimum lighting level requirements of BS 5489.

The introduction of the variable lighting technology will provide a significant carbon and energy reductions to the Council in future years and provides a more public acceptable alternative to just switching lights off.

4) Reactive Maintenance Services

The Council is responsible for providing and maintaining good quality street lighting across Perth & Kinross Council making our communities feel safer, extending the leisure and working day and reducing the fear of crime.

Maintenance activities are prioritised within the limits of available budgets as follows:

1. Ensure the safety of existing equipment
2. Keep existing lights working
3. Improve reliability of existing lighting
4. Upgrade lighting standards in areas already lit
5. Provide lighting in unlit areas (only if funded by others)

4.1 Service Standards

Service	Measured By	Target Compliance
Safety	Electrical testing of all equipment shall be undertaken at a frequency of 6-8 years.	100%
	Emergency faults shall be made safe or repaired within 4 hours of notification.	100%
Condition	The percentage of street light columns exceeding their expected service life (ESL) should be no more than 25%.	< 25%
	A non-emergency fault shall be rectified within 7 working days (Single Outage)	100%
	Average time taken to repair faults to restore lamps to working order.	2.6 days

4.2 Evening Inspections of Lights (Scouting)

The Council no longer carries out a night scouting facility for faulty street lighting, illuminated signs and bollards.

The public are encouraged to report faults by phone on the Councils free phone customer care number 0800 23 23 23 between 9am and 5pm Monday to Friday.

4.3 Emergencies

Emergencies are responded to within 4 hours and cover the following

- Lighting column, control pillar, lit sign pole damaged by vehicles
- Loose lanterns brackets, signs likely to fall and endanger the public
- Damage to lighting cables or overhead lines
- Lighting column or control pillar door missing and wiring disturbed
- Groups of lights and single lights out are not normally classed as emergencies and will be passed for repair the next working day.

4.4 Out of Hours Emergencies

An out of office hours and weekend emergency callout service is in place 365 days a year to deal with the Emergencies listed above.

- Tayside Police will record and process all calls received from the Public.
- Any issues identified are either rectified immediately if public safety is involved or programmed for upgrading at a later date.
- In cases of direct Public Safety, the Standby Operative will be called by the Police Control Room to investigate and decide on the appropriate action to be taken.
- On the first working day after any holiday shut down, all non-urgent requests will be dealt with.

5) Preventative Maintenance Services

Routine or preventative maintenance is a range of cyclic activities designed to help the lighting stock operate in an efficient manner. This regime includes statutory electrical testing, structural testing, visual inspections & column numbering.

These activities are designed to maintain the design standard of illumination and to ensure the equipment remains in a safe condition.

5.1 Electrical Testing

- All new installations and alterations to the existing infrastructure are tested prior to commissioning.
- Routine testing to all installations is planned for every 6-8 years. This is a specified requirement in the Electricity at Work Regulations and BS7676 IEE Wiring Regulations.
- The results arising from electrical testing is used as a driver for future programmed maintenance and if appropriate, replacement.
- Any installations found during the testing process to be of electrical safety concern will be made safe at the earliest opportunity.

5.2 Structural Testing

Selection of equipment is initially completed using inventory records. Columns older than 30 years and higher than 8m are to be structurally tested. Priority is given to columns on major traffic routes, high pedestrian areas of activity, age and visual condition. 1990 was the last year that non-galvanised steel and concrete columns were being installed. Since that time the more sustainable materials of galvanised steel and aluminium which are considered to have a longer life expectancy have been installed.

Note: The council will have a zero tolerance in regard to fixing illegal/unapproved attachment to lighting columns and these will be removed at the earliest opportunity.

5.3 Column Painting

It is now the policy to use aluminium columns for all new column replacement projects in the city. Due to their construction and corrosion resistant qualities, aluminium columns require no maintenance painting.

5.4 Group Lamp Replacement

It has been demonstrated through a Best Value analysis that the maintenance cost of certain lamp sources can be operated more cost effectively if a bulk lamp change of lamps is carried out just prior to their expected end of life.

5.5 Inventory Inspections and Numbering

Keeping inventory and management information up to date is vital to maintaining the Asset. Regular Inventory checks are carried out along with re numbering to ensure that the information contained within the computerised asset management system and the various reports that it produces (e.g. energy) is valid and up to date.

6) Prioritising Lighting Column Replacement

Street Lighting renewal is funded through the Council's Capital budget allocation each year. Information collected from the asset management database is assessed and renewal schemes are prioritised on an ongoing risk managed basis. Lighting replacement is also prioritised using an assessment system which considers age, structural condition, electrical condition and other environmental factors.

In terms of best practice and where funding allows, a strategy of linking the footway maintenance budget to the lighting replacement projects is in place. This will achieve overall project cost reductions and maximise the use of joint resources.

In addition to the above columns, individual columns that are identified through routine inspections and structural surveys as presenting an imminent danger will be replaced at short notice.

Requests from the public in relation to improvements due to claims of poor lighting levels are unlikely to be progressed but will be kept on file until alternative means of funding can be made available.

7) New and Replacement Installation Standards

All street lighting materials are procured through the Scotland Excel Street Lighting Materials Framework Contract. Individual specifications are available for each material type. The same specifications are used for new housing developments or any other installation that will be adopted by Perth and Kinross Council.

8) Environmental Issues

8.1 Carbon Reduction Commitment

The Scottish Government's second Report on Policies and Proposals (RPP2) maps out to 2027 how Scotland's ambitious climate change targets, set out in the Climate Change (Scotland) Act 2009, and the transition to a low-carbon society will be achieved. It recognises the critical role of the public sector in leading Scotland to achieve this. Street lighting can account for up to 25% of local authorities' electricity spend and related carbon emissions.

Perth and Kinross Council has committed to replacing 17,500 lanterns with LEDs which will deliver annual energy savings of 4,056,820 kWh which represents a 40% reduction in the Council's total unmetered energy consumption.

Annual CO₂ emissions saved are 2,163 tonnes. Over the life of the project a reduction of 43,260 tonnes of CO₂ emissions will be achieved.

This reduces the Council's future exposure to increasing electricity prices. Maximises the carbon reduction savings as part of the Carbon Reduction Commitment (CRC).

Street Lighting energy consumption has been included within Carbon Reduction Commitment Scheme from 1st April 2014. As a result Perth and Kinross Council will incur a carbon fee of approximately £90,000 per annum. This investment to convert 17,500 street lights to LED will generate sufficient savings to pay for Carbon Reduction Credits.

8.2 Energy Consumption Methodology

Unmetered electricity is traditionally paid for by an assessment system based on published consumption figures for each lamp type and a fixed annual number of operating hours giving an estimated annual consumption (EAC). Recent changes in operating hours now favours the power supply companies and providing meters for all street lights would be prohibitively expensive. A more accurate alternative is the method which simulates a half hourly charging regime - "passive half hourly metering". This method uses fixed offsets linked to sunset and sunrise times to calculate operating hours. This information is processed by a 'Meter Administrator' accredited to OFGEM.

Being able to purchase electricity from the half hourly trading market makes what is paid for more accurate and hence can reduce costs. It also has major positive implications related to the carbon reduction commitment.

Electricity for street lighting is procured through Procurement Scotland as a Category A commodity. This Contract benefits from the economy of scale of collaborative procurement. The trading model used allows for parcels of electricity to be purchase in advance when prices are forecast to be at their lowest. This approach is preferred to the high risk approach of purchasing all your electricity requirements on a single day when prices may be high.

8.3 Implementation of Variable Lighting Systems

In general terms the two-step dimming process in the policy will provide saving on energy consumption and hence carbon emissions.

The new lighting policy design standards and the introduction of variable lighting in locations where appropriate will be rolled out through the LED Lantern Replacement Project.

8.4 Light Pollution

All artificial lighting, including Street Lighting causes 'Light Pollution'. Light pollution is wasteful and this waste is minimised as follows:

- Providing lighting only in places where considered necessary as detailed in the Roads Scotland Act Part IV Section 35 (i) and as detailed in section 1 (Where We Light) of this policy statement.
- Keeping lighting levels to the lowest acceptable standards as detailed in tables 5 and 6.
- Specifying luminaries that direct all light below the horizontal. The need to provide some illumination to areas surrounding the road makes shallow bowl luminaries the most economic.
- Intrusion potential is considered at the design stage and where possible, lights are located on boundary lines of properties and away from windows.

Perth & Kinross Council Street Lighting have for many years followed the Guidance issued by the Institution of Lighting Engineers – “Guidance Notes for the Reduction of Obtrusive Light

The Scottish Government Guidance Note “Controlling Light Pollution and Reducing Lighting Energy Consumption” deals with wider issues of energy consumption and is also taken account of when carrying out lighting designs and renewal projects.

8.5 Recycling

The aim is to recycle or re-use 100% of street lighting equipment affected by maintenance or replacement programmes.

The Waste Electrical and Electronic Equipment Directive (WEEE Directive) was introduced in January 2007. The directive aims to reduce the amount of electrical and electronic equipment being produced and to encourage everyone to reuse, recycle and recover it.

As such the Council has a responsibility to ensure compliance with the directive with regard to disposal of electrical equipment. Through the Street Lighting Partnership, Tayside Contracts has in place arrangements with disposal and recycling companies who offer collection services from the three Tayside Councils. The cost of recycling is recovered by the companies through the WEEE levy imposed on electrical purchases.

In relation to lanterns and other materials arising from lighting renewal projects, designers will assess the condition of lanterns being replaced and if in good condition it will be used to service maintenance replacements. The use of mercury free SON lamps is also a preferred in order to minimise the affects on the environment.

8.6 Removal of Lighting and Lit Signs

The document that governs the type, detail and use of all road signs namely, the Traffic Signs Regulations and General Directions (TSRGD) has been updated.

Due to improvements in road sign manufacturing processes and the reflectivity of sign facing materials there has been a change within the latest version of the TSRGD greatly reducing the occasions where traffic signs need to be lit.

Some of the most common changes are as follows:

- warning signs (when not on a trunk or principal road)

- regulatory signs (when not on a trunk or principal road)
- driver information signs (all roads)

Whilst a Roads Authority could still elect to light such road signs on the basis of road safety / improved driver information, it is proposed to take a stricter approach with the TSRDG and only light such signs in exceptional cases where a site specific risk assessment supports that course of action. In addition it is proposed to implement a programme of removing lighting apparatus from existing road signs where no longer required by the TSRGD.

In addition to the unnecessary lighting of some historic road signs, consideration also needs to be given to the occasions where lighting is no longer needed or does not perform the function it once carried out. Such situations could include, bypassed roads, sections of rural roads out with settlements, roads where housing or industrial units have been demolished or where a public facility is no longer in use.

9) Financial Budgets and Expected Levels of Service

9.1 Cost Categorisation Assessment

A complete cost categorisation assessment has been prepared. This analysis looks at the actual financial costs for delivering and implementing this approved Street Lighting policy. The cost categorisation forms part of the overall Road Asset Management Plan (RAMP).

The analysis also reviews existing levels of service against both local and national performance indicators which have been developed to take account of current Statutory or Industry (Code of Practice) requirements.

9.2 Budget Requirements

The analysis above also reviews the financial budgetary requirement to maintain the existing levels of service in line with the Policy. It identifies any short fall in allocated budget which in turn allows levels of service to be amended on risk assessment basis in order to match financial funds available.

10) Further Information / Contacts

Further information on Street Lighting issues can be obtained from:

Street Lighting Partnership Manager, Lisa Chiles, telephone number 01382 834132.

Street Lighting Senior Engineer, Scott Denyer, telephone number 01738 476948.

