

Transport and Environment Committee

10.00am, Thursday, 9 August 2018

Street Lighting Management Arrangements

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Executive Summary

Under the Roads (Scotland) Act 1984, the Council has a statutory duty to provide lighting for roads, or proposed roads, which are, or will be, maintained by them and which in their opinion ought to be lit.

The Street Lighting Management Arrangements (Appendix 1) outline the basic principles and standards currently applied to street lighting and illuminated signage and are presented to Committee for noting.

Street Lighting Management Arrangements

1. Recommendations

- 1.1 It is recommended that the Transport and Environment Committee notes the current Street Lighting Management Arrangements contained in Appendix 1.

2. Background

- 2.1 The fundamental purpose of street lighting is to help create a better street environment in which to live, work and play.
- 2.2 The objectives of the Street Lighting Management Arrangements are to help the Council achieve the above aim by:
- 2.2.1 providing a safe road network for all road users;
 - 2.2.2 minimising the environmental effect of street lighting whilst enhancing the night-time ambience;
 - 2.2.3 ensuring that street lighting is in keeping with and properly integrated into the infrastructure;
 - 2.2.4 helping to reduce crime and the fear of crime;
 - 2.2.5 providing a cost-effective street lighting service;
 - 2.2.6 enhancing the ongoing operation of the service; and
 - 2.2.7 energy conservation and sustainability.
- 2.3 The Street Lighting Management Arrangements will be key in supporting: the 2050 Edinburgh City Vision (for Edinburgh's built and digital infrastructure to be made for the future, meeting the demand of a growing economy and a changing society); the Local Transport Strategy; and the Edinburgh Local Development Plan.

3. Main report

- 3.1 The Street Lighting Management Arrangements have been developed to improve and standardise the management of the installation and maintenance of all types of external public lighting owned, or adopted by, the Council. It is

intended to be used as a master plan for all new installations, conversions, upgrades, refurbishments and day to day maintenance.

- 3.2 They also define the standards to which all personnel must work: whether employed by the Council; as contractors working on behalf of the Council; or as private contractors constructing new roads intended for adoption.

4. Measures of success

- 4.1 Well designed and installed public lighting, which is effectively maintained and operated, can play a substantial part in the Council's duties to road, pavement and public space users by: improving safety; reducing crime and fear of crime; improving commerce; improving the night scene; making more sustainable and non-motorised transport more attractive and friendly; and reducing energy consumption and costs.

5. Financial impact

- 5.1 There are no financial implications associated with this report. Repairs to street lighting faults and energy costs are primarily funded from the Council's Revenue budgets. Column/Lighting unit replacements and lighting upgrades have generally been funded from Capital budgets.
- 5.2 The high cost of maintenance and renewal of the existing lighting infrastructure, the rising cost of energy consumption and issues with light pollution, together with the Council's commitment to reducing carbon emission means that it is prudent to review the Council's overall lighting management arrangements to ensure resources are directed in the most efficient and effective manner.

6. Risk, policy, compliance and governance impact

- 6.1 Whilst there are no significant compliance, governance or regulatory implications expected as a result of approving the recommendations in this report, the Council is at risk of not fulfilling its statutory duties as a Road Authority if it does not have robust Transport Policies in place. It is important that effective Street Lighting Management Arrangements are in place to support the Transport Policies.

7. Equalities impact

- 7.1 The design and maintenance of street lighting can potentially have a wide and varied impact upon equality and rights issues. Issues that need to be considered as part of any management arrangement changes, or scheme designs, include: personal and property security issues; need to maintain community involvement after dark; need to reduce accidents; and reduce crime or fear of crime.
- 7.2 Detailed Integrated Impact Assessments (IIAs) will be undertaken for any street lighting scheme that significantly reduces the level of street lighting, as specified in the Street Lighting Management Arrangements.

8. Sustainability impact

- 8.1 Poorly designed street lighting can cause light pollution, increase the fear of crime and result in poor energy efficiency.
- 8.2 There are many opportunities to improve both the energy efficiency of street lighting and to utilise modern lighting to provide white light for improved colour rendition and reconsider lighting levels in certain circumstances. The Street Lighting Management Arrangements are formed to enable these opportunities to be captured.

9. Consultation and engagement

- 9.1 With the Street Lighting Management Arrangements codifying current practice rather than modifying it, the opinion of the Council's Lead Insight and Engagement Officer is that it does not require public engagement.
- 9.2 Edinburgh World Heritage was consulted and their views have been taken into account.

10. Background reading/external references

- 10.1 None.

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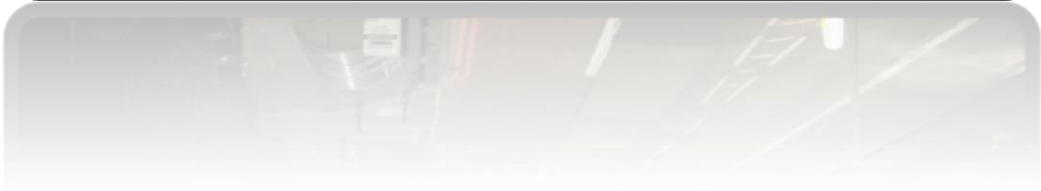
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11. Appendices

Appendix 1



Street Lighting Management Arrangements



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1 Introduction

- 1.1 This document outlines the basic principles and standards applying to street lighting and illuminated signage in the City of Edinburgh.
- 1.2 Well designed and installed public lighting, which is effectively maintained and operated, can play a substantial part in the Council's duties to road, pavement and public space users by:
- improving safety;
 - reducing crime and fear of crime;
 - improving commerce;
 - improving the night scene;
 - making more sustainable and non-motorised transport more attractive and friendly;
 - enhancing the historic environment; and
 - reducing energy consumption and costs.
- 1.3 Street lighting has many benefits if installed and designed correctly. These Street Lighting Management Arrangements aim to reflect current guidance on street lighting, lighting of traffic signs and considers the most recent advances in available technology.

2 Purpose & Key Implications

- 2.1 This document has been created to outline the requirements for the installation and maintenance of all types of external public lighting owned, or adopted by, the Council. It is intended to be used as a master plan for all new installations, conversions, upgrades, refurbishments and day to day maintenance.
- 2.2 It also defines the standards to which all personnel must work: whether employed by the Council; as contractors working on behalf of the Council; or as private contractors constructing new roads intended for adoption.
- 2.3 Legal Issues**
- 2.3.1 Under the Roads (Scotland) Act 1984 the Council has a statutory duty to provide lighting for roads or proposed roads where the road is maintainable by the Council, and, in the Council's opinion, the road ought to be lit. Additionally, the 1984 Act empowers the Council to provide lighting for any road, or proposed road, which, in the Council's opinion, ought to be lit, and in respect of which the Council is not under a duty to maintain.
- 2.3.2 In addition to its statutory duty, the Council has a common law duty of care to road users. The Council should be able to demonstrate that it has systems in place to maintain the public lighting equipment in a safe condition, including the detection of dangerous/faulty equipment.
- 2.3.3 The Carbon Reduction Commitment (CRC) is a mandatory scheme aimed at improving energy efficiency and cutting emissions in large public and private sector organisations. The CRC applies to organisations which have at least one registered half hourly electricity meter and have consumed more than 6,000MWH (megawatt hours) of electricity in a qualifying year. These street lighting management arrangements are intended to help contribute to the Council meeting its requirements under this scheme.
- 2.3.4 Under the CRC guidance, participants are also currently required to consider any unmetered electricity supplies provided on a dynamic pseudo half hourly basis (Dynamic pseudo Half Hourly meters allocate the unmetered consumption across half hourly periods by reference to the operation of PECU photocells or actual switching times as reported by a Central Management System) for the purposes of qualification and participation. Such supplies are typically provided for street lighting purposes.

2.4 Policy

2.4.1 This document will be key in supporting: the 2050 Edinburgh City Vision (for Edinburgh's built and digital infrastructure to be made for the future, meeting the demand of a growing economy and a changing society); the Local Transport Strategy; and the Edinburgh Local Development Plan.

2.4.2 This document should be read in conjunction with the Sustainable Lighting Strategy for Edinburgh, approved by the Council's Planning Committee on 14 June 2012 and the Old and New Towns of Edinburgh World Heritage Site Management Plan 2017 – 2022.

2.5 Resource Implications

2.5.1 Repairs to street lighting faults and energy costs are primarily funded from the Council's Revenue budgets. Column / Lighting unit replacements and lighting upgrades have generally been funded from Capital budgets.

2.5.2 The high cost of maintenance and renewal of the existing lighting infrastructure, the rising cost of energy consumption and issues with light pollution, together with the Council's commitment to reducing carbon emission means that it is prudent to review the Council's overall lighting management arrangements to ensure resources are directed in the most efficient and effective manner.

2.5.3 A key part of these street lighting management arrangements is to increase value for money.

2.6 Risk Implications

2.6.1 The Council is at risk of not fulfilling its statutory duties as a Road Authority if it does not have robust Transport Policies in place. It is important that effective Street Lighting Management Arrangements are in place to support the Transport Policies.

2.7 Environmental Implications

2.7.1 Poorly designed street lighting can cause light pollution, increase the fear of crime and result in poor energy efficiency.

2.7.2 There are many opportunities to improve both the energy efficiency of street lighting and to utilise modern lighting to provide white light for improved colour rendition and reconsider lighting levels in certain circumstances. This document is formed to enable these opportunities to be captured.

2.8 Equalities and Rights Impact

- 2.8.1 The design and maintenance of street lighting can potentially have a wide and varied impact upon equality and rights issues. Issues that need to be considered as part of any management arrangement changes, or scheme designs, include: personal and property security issues; possible reduction in community involvement after dark; potential for increase in accidents; and possible increase in crime or fear of crime.
- 2.8.2 Community/personal safety fears are more acute within certain groups. When reducing the lighting in residential areas, it is appreciated that residents will be concerned about the fear of crime in their immediate environment.
- 2.8.3 People from certain socio-economic backgrounds can also be acutely affected, e.g. shift workers who may walk/cycle to work could be adversely affected by proposals to reduce lighting levels.
- 2.8.4 Changes to street lighting may affect those who are elderly or disabled, including wheelchair users, those that are unable to walk unaided, blind and partially sighted people, all of whom would find it increasingly difficult to get around with less lighting.
- 2.8.5 Modern well-designed street lighting can have some positive effects on some of those mentioned above. For example, providing white light assists greatly with night-time visibility and colour rendering. Providing an enhanced distribution (uniformity) of lighting can have a positive impact on those with visual impairments.
- 2.8.6 Detailed Equality and Rights Impact Assessments (ERIAs) will be required for any street lighting scheme that significantly reduces the level of street lighting as specified in Section 9 below.

3 Legislation and Regulations

- 3.1 Public street lighting systems, installed and maintained within the Council area, shall be guided by the legislation and regulations set out in Appendix 1 'Relevant Standards & Guidance'.
- 3.2 To achieve a consistent approach to the provision of street lighting, the appropriate levels for each specific class of road, pavement, cycle path, etc. must be determined by taking account of:
- the use of the road for vehicles, pedestrians or cycles;
 - the traffic flow and speed;
 - local amenities, such as shops, leisure centres, schools, churches and medical centres, which may affect the night-time use of the road;
 - the location of the road (rural or urban); and
 - any environmental aspects.
- 3.3 Each category of road, pavement, cycle path, etc. will have its own specific requirements, which will affect the level of lighting to be provided. The current British Standards for Street Lighting are BS 5489: 2013 and BS EN 13201: 2015. These standards provide recommendations on the general principles of street lighting, its aesthetic and technical aspects, and advise on operation and maintenance.

4 Main Objectives

- 4.1 Street Lighting covers the lighting of all types of road and public thoroughfare, assisting traffic safety and ease of passage for all users. In this respect, good lighting can be one of the measures used to reduce night-time traffic collisions.
- 4.2 Street Lighting can allow pedestrians to see hazards, orientate themselves, recognise other pedestrians and feel more secure. It also has a wider social role, with the potential of helping to reduce crime and the fear of crime, and can contribute to commercial and social use at night of city centres and tourist locations by improving the night-time appearance.
- 4.3 When taking account of the above objectives, the main considerations include:
- The provision of appropriate lighting;
 - Electrical and structural safety and testing;
 - The reliability of equipment;
 - Whole-life costs;
 - A coordinated approach to lighting;
 - The location and access to equipment;
 - Use of innovative solutions; and
 - The management and control of lighting levels.

5 General Arrangements

5.1 All street lighting work undertaken by, or on behalf of, the Council will support the general statements listed below.

G1 Street Lighting will be on “all night”.

This will be realised by utilising a Central Management System for the accurate switching of lights.

G2 Street Lighting sources will be white light.

This will be realised by adopting the mechanisms in the specific arrangements that follow.

G3 The visual impact of lighting systems will be minimised and, where possible, the local environment enhanced.

This will be realised by: providing the minimum level of lighting equipment in line with the identified need; locating columns and equipment to blend with (or enhance) the surroundings; considering the use of wall mounted fittings; and considering the use of alternative light sources.

G4 Lighting systems shall minimise light pollution to the night sky.

This will be realised by: following the guidance set out in the ILP Guidance Notes for the Reduction of Obtrusive Light, and the Scottish Government guidance note ‘Controlling Light Pollution and Reducing Lighting Energy Consumption’.

Lighting systems shall be designed to minimise obtrusive light.

Obtrusive artificial lighting can be subject to the provisions of Statutory Nuisance under the Public Health etc (Scotland) Act 2008 and any issues of artificial light adversely impacting a person’s reasonable use of their property can be investigated by the local authority.

G5 Waste from lighting systems shall be eliminated, reduced or recycled.

This will be realised by: using Light Emitting Diodes (LED’s), lamps with a longer life; minimising the number of lighting units; and considering the whole life cost of components (including the cost of disposal).

G6 Lighting systems shall minimise the use of energy.

This will be minimised by: using appropriate technologies; ensuring new schemes are correctly designed with optimum spacing; and monitoring the operating hours of equipment (through a Central Management System) to ensure they are optimised.

G7 Energy will be procured by the most advantageous means.

This will be realised by: ensuring there is an accurate inventory of street lighting apparatus; monitoring energy charges levied by the Distribution Network Operator; and continuing to procure energy through joint tenders with other Roads Authorities.

G8 We will continue to work with the Electricity Company (Distribution Network Operator – DNO) to ensure good provision of electrical services to our apparatus.

This will be realised by: working with the Distribution Network Operator in line with the Service Level Agreement; and ensuring all instructions issued to the DNO are accurate and include all information they require.

G9 All staff shall be competent to carry out the duties of their role.

This will be realised by: ensuring all operatives employed by the Council, its contractors and sub-contractors are (or will be) trained and competent for their area of work; and ensuring that staff are up to date with the latest developments within street lighting.

6 Lighting Standards

- 6.1 The Council will adopt a zoning system to define the lighting standards applicable to an area, setting out where public street lighting will be provided and the types to be specified.
- 6.2 All new public lighting installations within the Council area shall be designed in accordance with the latest versions of BS 5489 and BS EN 13201 wherever practicable and justifiable, based on the zone definitions below. Any proposed lighting should be questioned as whether it is required.
- 6.3 The detailed requirements of the four zones are set out below.
- 6.4 Zone E1 – Intrinsically Dark Landscapes
National Parks, Areas of Outstanding Beauty, etc**
- 6.4.1 Additional lighting should not be provided, unless a safety audit states that additional lighting will directly improve safety.
- 6.4.2 The provision of lighting in accordance with BS 5489 and BS EN 13201 will not be required and a more strategic approach adopted.
- 6.4.3 Where existing lighting is to be repaired, or replaced, consideration should be given to the need / reason for the retention of the unit, e.g. the possibility of lowering the wattage or removing the unit altogether should be considered.
- 6.4.4 Light pollution must be kept to a minimum, using suitable luminaires.
- 6.5 Zone E2 – Areas of Low District Brightness
Rural, small villages, or relatively dark urban locations**
- 6.5.1 The introduction of lighting into rural areas encourages alternative modes of transport and reduce the dependency on private motor vehicles. Care will be taken not to urbanise a rural location by the provision of an unsuitable and intrusive lighting scheme.
- 6.5.2 In rural areas alternatives to lighting, such as improved road delineation, use of reflective studs, signing and lining, should all be considered before lighting is introduced, with an integral approach used to develop proposals that best balance safety and environmental considerations.
- 6.6 Zone E3 – Areas of Medium District Brightness
Small town centres or urban locations**
- 6.6.1 New developments within Zone E3 shall be lit in accordance with BS 5489 and BS EN 13201.

**6.7 Zone E4 – Areas of High District Brightness
City Centres with high levels of night-time activity**

- 6.7.1 Lighting within Zone E4 shall be flexible to illuminate the area for motorists and provide an interesting and attractive setting for people to enjoy.
- 6.7.2 Zone E4 areas are generally bright and lively, however care shall be taken to control glare.

7 Design Requirements

7.1 All street lighting design work undertaken by the Council, or on behalf of the Council, will be in accordance with the latest versions of:

- British Standard (BS 5489)
- European Standard (EN 13201)
- ILP Technical Reports
- IEE Wiring Regulations
- CEC Standard Drawings
- Edinburgh Street Design Guidance
- Design Manual for Roads and Bridges
- Traffic Signs Regulations and General Directions

7.2 All street lighting design work will incorporate the statements listed below.

- D1 Street lighting design will seek to minimise obtrusive light.
- D2 Traffic calming features and cycle tracks will be illuminated, where required.
- D3 Pedestrian Crossings, signal-controlled junctions, Zebra Crossings and Pedestrian Subways and underpasses shall be illuminated.
- D4 All new light sources shall be 'white light' with a colour rendering index $R_a \geq 60$, and a colour temperature $\leq 4,300$ kelvin, subject to the local street scene.
- D5 All new installations shall have luminaires equipped with electronic DALI enabled control gear and 7-pin NEMA socket suitable for the Council's Central Management System (CMS). The Council will supply appropriate control nodes (at market rate).
- D6 All street lighting columns installed on the road shall be aluminium except in exceptional circumstances, with all poles for lit signs (sign columns) being steel except in exceptional circumstances.
- D7 Attachments shall not normally be permitted.
- D8 Permission must be formally requested (in writing) from the Council for the installation of CCTV, ANPR and/or wireless equipment.
- D9 Design of lighting for the World Heritage Site will require approval from Edinburgh World Heritage, with Conservation Areas requiring approval from the Council's Planning Section.

7.3 Obtrusive Light

7.3.1 Obtrusive light (often referred to as Light Pollution) is light that falls outside the area to be illuminated or causes annoyance, discomfort and distraction to the public, and is classed as a statutory nuisance under the Public Health etc (Scotland) Act 2008. The effects of obtrusive light include:

- illuminating adjoining premises;
- impairing the view of the night sky; and
- keeping people awake during the night or disturbing sleep patterns.

7.3.2 The effects highlighted above shall be minimised through the selection of the correct column height and luminaire for each installation.

7.3.3 Where obtrusive lighting is expected, a shield should be specified as part of the design process, where suitable, with lighting of the public road/pavement being a priority.

7.3.4 Customer queries regarding obtrusive light shall be considered on an individual basis, and alternatives explored before the installation of a shield.

7.4 Traffic Calming

7.4.1 Traffic calming is designed to reduce the speed and type of traffic using a street or an area. It achieves this aim by physically reducing the width of the road or by adding obstacles in the way of the motorist such as vertical (speed humps/cushions) or horizontal deflections (chicanes or pinch points) of the road.

7.4.2 As a minimum, lighting on roads which contain traffic calming is designed to the levels specified in BS 5489 and EN 13201. This also covers the approaches and all traffic calming features. The lighting of the traffic calming shall also be designed in accordance with ILP's 'TR 25 Lighting of Traffic Calming Features'.

7.5 Cycle Tracks

7.5.1 If the need for lighting has been identified, cycle tracks shall be illuminated in accordance with ILP's 'TR 23 Lighting of Cycle Tracks', BS 5489 and EN 13201.

7.6 Pedestrian Crossings and Subways

7.6.1 Pedestrian and traffic signal controlled pedestrian crossing points are areas of high conflict between pedestrians crossing the road and motorists.

7.6.2 All pedestrian crossing shall be illuminated in accordance with ILP's 'TR 12 Lighting of Pedestrian Crossings', BS 5489 and EN 13201.

7.6.3 Signal Controlled Crossings (Pelican and Puffin)

7.6.3.1 Street lighting at signal-controlled pedestrian crossings shall be designed in accordance with BS 5489 and EN 13201.

7.6.4 Zebra Crossings

7.6.4.1 All zebra crossings shall be illuminated in accordance with BS 5489, EN 13201 and ILP's 'TR 12 Lighting of Pedestrian Crossings'.

7.6.4.2 Street lighting, near the crossing, shall comply with BS 5489 and EN 13201. The lighting levels either side of the crossing should relate to the traffic speed and local circumstances.

7.6.5 Pedestrian Subways and Underpasses

7.6.5.1 Lighting of subways and underpasses shall be designed in accordance with BS 5489 and in consultation with the Structural Engineer responsible for the structure.

7.7 Park and Ride Sites

7.7.1 Lighting of Park and Ride Sites shall be designed in accordance with section 7.4.8 of BS 5489.

7.8 Light Sources

7.8.1 The preferred light sources for new street lighting installations shall provide good uniformity and the lowest whole life energy solution.

7.9 Luminaire Specification

7.9.1 The luminaire used on street lighting schemes will depend on the area and type of lighting being provided.

7.9.2 Luminaires can be grouped to their use under the following headings:

- Functional – Generally used where maximum utilisation of the light output is required.
- Decorative – Generally used where a decorative and aesthetically pleasing appearance (both by day and night) are required.
- Functional Decorative – Combining good optical performance in a decorative body.

7.9.3 Luminaires on all new installations shall be energy efficient and provide adaptive lighting.

7.9.4 Luminaires shall be capable of being fitted with nodes to communicate with the Council's Street Lighting Central Management System (CMS).

7.9.5 Luminaires shall be of a high Ingress Protection (IP) rating (minimum 65) and of modular construction to provide future proof structure for installing the latest technologies.

7.10 Column Specification

- 7.10.1 All new street lighting columns shall be aluminium (except in exceptional circumstance) and manufactured in accordance with the Council's detailed Column Specification.
- 7.10.2 All raise and lower columns will be mid-hinged to allow easy maintenance.
- 7.10.3 New columns shall be positioned consistently throughout the scheme, taking account of tree canopies, windows, driveways, overhead/ underground cables, basements, cellars, buildings and the local road geometry.

7.11 Attachments

- 7.11.1 Existing street lighting columns, other than those installed in recent years, are not designed to take additional loading from any type of attachment. Given the age of many columns, an attachment could result in damage or structural failure, therefore any proposed attachment must first receive written authority from the Council's Street Lighting function.
- 7.11.2 Where street lighting columns are to be used to carry additional loads, such as traffic signs, banners, flags and Christmas decorations, they should be designed to carry the additional load. Columns manufactured to the Council's detailed Specification are designed to carry traffic signs and banners, as follows:

Column Height	Attachment
5m 6m	Class B Sign weighing 5kg and 0.6m ² , centrally mounted 3m above ground level together with a sign lighting unit weighing 4kg and wind area of 0.03m ² at a nominal height of 3.75m above ground level plus a Clamp Style Hanging Basket weighing 40kg and with a wind area of 0.21m ² at a height of 2.5m.
8m 10m 12m	Class B Sign weighing 5kg and 0.6m ² , centrally mounted 2.5m above ground level together with a sign lighting unit weighing 4kg and wind area of 0.03m ² at a nominal height of 3m above ground level plus a 1.6m x 600mm Flexible Banner with a reduction in area of 0.25m ² , mounted at 3.5 m above ground level.

- 7.11.3 Permission to erect signs and banners on existing columns is not granted unless it has been proven that the column can withstand the additional load by the column manufacturer. The column must also be structurally sound.
- 7.11.4 Some attachments (e.g. banners) may also require approval from Planning and Edinburgh World Heritage.
- 7.11.5 Catenary supported attachments are not permitted to cross the road without permission of the Council.
- 7.11.6 Applicants are responsible for ensuring all necessary permissions, approvals and insurances have been obtained.

7.12 CCTV, ANPR or Wireless Communications

- 7.12.1 The erection of equipment on street lighting columns can only take place after the Council's Street Lighting function has confirmed the suitability and stability of the column.
- 7.12.2 The requirements for fixtures being approved include:
- Equipment remains the responsibility of the installing body.
 - The installing body have adequate public liability insurance to indemnify the Council.
 - The installing body ensures compliance with any planning or communications equipment licensing requirements.
 - Equipment shall be removed immediately upon request of the Council, or removed by the Council, at the owner's expense if there are concerns about the safety of the system.
 - Equipment is manufactured with supports and mounting points capable of supporting the equipment.
 - All systems shall be rated at 25v SELV. For systems sited at least 3.5m above the road, mains voltage (230v) may be used. For all systems, the installer must ensure that the requirements of BS 7671 are met and (where appropriate) supplementary protection by use of a 30mA RCD shall be given.
 - All equipment is erected in compliance with the following (or updates):
 - Health and Safety at Work Act 1974
 - The Construction (Design and Management) Regulations 2015
 - Electricity at Work Regulations 1989
 - BS 7671 17th Edition Wiring Regulations 2008
 - New Roads and Street Works Act 1991
 - Traffic Management Act 2004
 - Traffic Signs Regulations and General Directions 2016
 - Each installation is tested, with the electrical test certificates and test results passed to the Council's Street Lighting function.
 - If power is required to be supplied from within the supporting column, a suitable (approved) switching arrangement must be installed with all costs

(including ongoing energy costs) agreed by the Council and paid by the installing body.

- All fixings shall be designed to prevent galvanic corrosion between it and the supporting column.
- All temporary fixings used to attach the equipment to the column is always free from corrosion and is removed at the end of the licence period.
- Any damage to the column, or its protective surface, is made good upon removal of the equipment.
- Catenary supported lighting is not permitted to cross the road without permission of the Council.

7.13 World Heritage Site and Conservation Areas

- 7.13.1 Careful consideration shall be taken when selecting suitable locations for street lighting equipment, with every effort made to reduce street clutter.
- 7.13.2 For reasons of authenticity, the locations of street lighting equipment should take account of historic street lighting types and positions.
- 7.13.3 The choice of lights and columns should take account of the character of the area and follow the zoning system in Section 6 of these arrangements.
- 7.13.4 Columns shall not be located where they block important views of historical buildings / areas.
- 7.13.5 Existing columns and lamp holders shall be preserved (in their original positions) and re-used wherever possible.

8 Maintenance

8.1 The Council has a statutory duty of care to ensure road electrical equipment is maintained in a safe condition, with all systems of public street lighting maintained to a standard that ensures their safe, economic, effective and reliable operation.

8.2 All street lighting maintenance work undertaken by, or on behalf of, the Council will incorporate the statements listed below.

M1 All public street lighting will be maintained to a standard that ensures they operate safely, economically and effectively.

M2 All street lighting columns are electrically tested every six years.

M3 All street lighting columns are subject to a structural inspection every six years and structurally tested six years before the end of their design life and every six years thereafter.

M4 All maintenance activities are recorded on the Council's asset management system.

M5 Street lighting columns will not normally be painted.

M6 Street lighting faults will be repaired in accordance with this document.

8.3 Fault Detection and Reporting

8.3.1 Faulty street lighting equipment will be identified by the following methods:

- Reported by the Street Lighting Central Management System
- Reported by the public

8.3.2 All street lighting equipment displays an asset number, which enables members of the public to accurately identify faulty apparatus. The numbering system used is:

- Columns – Three letters and two or three numbers (i.e. ABC12)
- Lit Signs – Two numbers and two letters (i.e. 34DE)
- Bollards and Centre Island Poles – Two letters and two numbers (i.e. FG56)

8.3.3 Street lighting faults can be reported by way of the Contact Details provided in Appendix 5 of these Arrangements.

8.4 Reactive Maintenance Response Times

8.4.1 The response times for reactive maintenance activities are:

<u>Nature of Fault</u>	<u>Response Time</u>
Emergency Repairs (i.e. life & limb situations)	4 hours
Priority Repairs (i.e. dark lights)	5 working days
Non-priority Repairs (i.e. where lamp is not dark)	20 working days

8.4.2 The repair of faults involving any District Network Operator equipment is dependent on the performance of third parties and are outside the direct control of the Council.

8.5 Electrical Testing

8.5.1 The electrical testing of all street lighting, illuminated signs and illuminated bollards will be undertaken and recorded in accordance with BS 7671 and Guidance Note 3: Inspection & Testing (Electrical Regulations). Any item that fails the test will be made safe and programmed for repair.

8.6 Structural Inspection and Testing

8.6.1 The structural inspection and testing of all street lighting will be undertaken in accordance with the “Well-managed Highway Infrastructure: A Code of Practice Part D. Lighting”, and The ILP Technical Report 22 Managing a Vital Asset: Lighting Supports. Following the inspection, the lighting column will be categorised for condition and any remedial work programmed.

8.7 Lit Signs

8.7.1 All existing lit signs will be assessed to current standards and will be replaced with non-illuminated units where regulations permit.

8.8 Lit Bollards

8.8.1 All existing lit bollards will be assessed to current standards and replaced with high-reflectivity, non-illuminated bollards where appropriate.

8.9 Recycling and Waste Disposal

8.9.1 Lamps and luminaires must be recycled where possible and disposed of appropriately. Most lamps are considered hazardous waste and must be disposed of in accordance with the Waste Electrical and Electronic Equipment (WEEE) Regulations 2013.

9 Carbon and Energy Management

9.1 The Council's Carbon Management Plan (CMP) sets out the framework for reducing our carbon emissions (from our buildings and activities) from 2015/16.

9.2 The CMP is an important part of the Council's overall approach to climate change, helping to meet citywide climate targets set out in Sustainable Edinburgh 2020 and contributing to mandatory reporting requirements.

9.3 The CMP can be viewed on the Council's website: www.edinburgh.gov.uk.

9.4 Energy Procurement

9.4.1 The Council's Corporate Governance function maintains a database of the Council's energy consumption within all council-owned properties and assets (including street lighting).

9.4.2 The Council utilises the Scottish Government Electricity Framework Agreement for the supply of half hourly, non-half hourly and domestic metered sites, and unmetered supply points.

9.4.3 The Council's street lighting energy consumption is calculated 'dynamically' using actual sunrise/sunset times from a PECU Array (an array of Photo Electric Cell Units, set up to be representative of and record the actual switch off/on times of lighting units). As part of the Street Lighting Renewal Project, the Council is introducing a Central Management System (CMS), which will track actual energy consumption.

9.4.4 Energy cost calculations for unmetered energy supplies are carried out by a 'meter administrator'. The Council's current independent meter administrator is Power Data Associates.

9.4.5 The energy consumption, measured in kilowatt hours (kWh), is used to calculate the Council's carbon emissions resulting from the Street Lighting inventory. This is measured and monitored based on the inventory data submitted to the Council's energy supplier.

9.5 Energy Measurement

9.5.1 The Council will continue to investigate, and where appropriate, introduce energy efficient street lighting technologies to reduce energy consumption.

9.5.2 Proposals will include:

- Removing non-essential street lighting, illuminated bollards and illuminated signs.
- Upgrading old outdated and inefficient lanterns to modern energy efficient units.

- 9.5.3 To monitor energy savings, it is important to establish baseline data. This requires an accurate inventory, with each lighting unit having a unique address (GPS position) along with the lamp and circuit watts with the corresponding charge (UMSUG) code number. The UMSUG code number is recognised by the energy supply companies and is used to calculate the electricity used by each street light. Street Lighting products that do not have an UMSUG code number will not normally be used.
- 9.5.4 Electricity consumed by Street lighting is measured in kilowatt hours (kWh) and a tariff is agreed for the price of each kWh between the supplier and the Council. Payments for electricity consumed are currently made monthly.
- 9.5.5 The energy consumed by the street light (i.e. lamp and control equipment) will be multiplied by the number of lights in each category (with the same UMSUG code) and by the number of hours that the lights are lit.
- E.g. (4000320000100) 32 watts x (808) 4,090 hrs = 130.88 kwh

9.6 Adaptive Lighting Levels

- 9.6.1 Introduction of the Central Management System (CMS), as part of the Street Lighting Renewal Project, will allow the Council to have direct control of street lights, with the ability to adjust the light output of each light individually.
- 9.6.2 The CMS will provide the ability to adapt lighting to local situations, such as increasing the output near crime hotspots and traffic junctions during busy periods.
- 9.6.3 The CMS will provide the ability to reduce energy usage through trimming (turning lights on later) and dimming (reducing light output during off-peak hours).
- 9.6.4 Further information on Adaptive Lighting and the management of requests is provided in Section 11 of these Arrangements.

10 Developments, New Schemes and Alterations

10.1 Developments

10.1.1 All proposed Road Construction Consents should be provided with a public lighting system and illuminated traffic signs / bollards, where appropriate as part of the agreement.

10.1.2 Adoption Procedure

10.1.2.1 For a new development to be adopted, the design and specification of the proposed lighting arrangement shall be agreed by the Council (prior to installation) and shall be designed in accordance with these Arrangements and the adoption policy for residential roads.

10.1.2.2 Once the development is adopted, the Council shall ensure that the street lighting equipment is added to the inventory at the earliest opportunity.

10.1.2.3 All lighting systems on new developments shall be inspected to ensure the equipment is fully operational and can be maintained before it is adopted.

10.1.2.4 Test certificates, witnessed by the Council, are also required before adoption can proceed.

10.1.2.5 The Council shall not be responsible for the costs associated with energy consumption until the equipment is adopted.

10.1.3 Technical Approval

10.1.3.1 The Technical Approval process shall meet the requirements of these Arrangements.

10.2 New Schemes

10.2.1 Road Improvement Schemes

10.2.1.1 When new traffic management measures or pedestrian crossing facilities are installed, it may be necessary to upgrade the existing street lighting in the area. Such improvement schemes may include:

- Traffic calming;
- Controlled and pedestrian crossings;
- Road realignments;
- Junction improvements;
- Road safety enhancements; and
- Installation of cycle lanes.

10.2.1.2 The extent of the lighting design should be in line with the relevant standards and guidance (see Appendix 1).

10.2.2 Community Safety Schemes

- 10.2.2.1 All requests for additional street lighting should be made in writing to the Council.
- 10.2.2.2 The Council will evaluate and prioritise new or improvement street lighting schemes by considering a range of factors. These include:
- Available funding;
 - Road safety and accident reduction;
 - Crime prevention;
 - Environmental issues;
 - Historic enhancement;
 - Public Realm enhancement;
 - Local Transport Strategy;
 - Modes of Transport; and
 - Traffic and/or pedestrian volumes.

10.3 Alterations

- 10.3.1 All enquiries by the public for additional street lighting, or alteration to the existing street lighting, should be made in writing to the Council.

10.3.2 New or Additional Street Lighting

- 10.3.2.1 Requests for additional street lighting for any purpose other than Council schemes will be re-chargeable. This will be confirmed to the requestor/applicant prior to the commencement of any work.
- 10.3.2.2 The factors considered include:
- Consequences of changing the existing arrangements;
 - Impact on existing street lighting arrangements;
 - Impact on other stakeholders;
 - Road safety issues; and
 - Future maintenance implications.

- 10.3.2.3 The Council will manage each request on its individual merit.

10.3.3 Removing/Moving an Existing Street Light

- 10.3.3.1 All requests to remove or relocate a street light (including column) permanently or temporarily must be made in writing to the Council.
- 10.3.3.2 Before agreeing to each request, the Council will consider:
- The reason for the request;
 - The duration of the request;
 - The impact of the request on the existing street lighting;
 - The future maintenance of the unit; and
 - The impact of the proposal on residents and other road users.
- 10.3.3.3 The applicant is responsible for:
- Payment of all the Council's costs involved in advance of the works taking place;

- Payment of all third-party costs, including those of the electricity provider;
- Obtaining all relevant consents prior to commencement of the work;
- Providing written evidence of consultation to any proposal with relevant parties e.g. neighbouring proprietors and statutory bodies;
- Compliance with other Council policies and procedures; and
- Ensuring the Council's insurance and indemnity.

10.3.3.4 All costs, charges and liabilities will be made known to the applicant in writing.

10.3.3.5 The applicant will be responsible for any additional cost variations incurred for reasons beyond the Council's control such as moving unidentified, inaccurately recorded public utility apparatus.

11 Adaptive Lighting

11.1 General

- 11.1.1 In line with the shared vision of Edinburgh as a more sustainable city, it is important that a balance is found between becoming a more environmentally friendly city and keeping the citizens of Edinburgh safe.
- 11.1.2 Adaptive lighting defines the operation of lighting during periods of darkness. This includes:
- Adjusting the switch on/off times;
 - Adjusting the lighting levels based on use;
 - Part-night lighting; and/or
 - Switching off.
- 11.1.3 Adjusting the switch on/off times (also known as trimming), can be used to save energy with modern lighting taking less time to warm up.
- 11.1.4 Adjusting the lighting levels (based on use), can be used to meet the requirement for the conditions at a particular time of night and thereby applied according to street activity rather than remaining at a pre-determined level.

11.2 Adaptive Lighting Requests.

- 11.2.1 Requests for adaptive lighting shall only be accepted from Family & Household Support Officers, Community Police Officers or Elected Members, using the form detailed in Appendix 2.
- 11.2.2 The Approval Process for such requests is detailed in Appendix 3.
- 11.2.3 Approved requests will be regularly reviewed to ensure continued relevance, with lighting levels reinstated when the request expires.
- 11.2.4 To manage increases in energy consumption and carbon emission, any increase in lighting output will need to be balanced with an equivalent decrease elsewhere within the city or funded by the relevant requesting party/organisation.

12 Competence

12.1 General

- 12.1.1 Regulation 16 of the Electricity at Work Regulations states that “No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work”.

12.2 Design Staff

- 12.2.1 All persons involved with the design of public street lighting shall comply with the recommendations set by the Institution of Lighting Professionals – Competency Requirements for Lighting Design Staff and the Construction (Design and Management) Regulations 2015.

12.3 Operational Staff

- 12.3.1 All persons involved in the maintenance and installation of public street lighting shall be trained and instructed to ensure that they understand the safety procedures which are relevant to their work and should only work in accordance with any instructions or rules.
- 12.3.2 All persons working near a DNO supply shall have attended and passed the Engineering Recommendation G39 Assessment Course.

Appendix 1 – Relevant Standards & Guidance

Standards:

BS5489-1	Code of practice for the design of road lighting.
BS EN 13201-2	Road Lighting: Performance requirements.
BS EN 13201-3	Road Lighting: Calculation of performance.
BS EN 13201-4	Road Lighting: Methods of measuring lighting performance.
BS EN 13201-5	Road Lighting: Energy performance indicators.
BS 7671	Requirements for Electrical Installations.
BS 3998	Tree Work Recommendations.
IES LM79	Electrical and Photometric Measurements of Solid State Lighting Products.
IES LM80	Measuring Lumen Maintenance of LED Light Sources
IES TM21	Projecting Long Term Lumen Maintenance of LED Light Sources
	Electricity at Work Regulations.
	Health and Safety at Work Act.
	New Roads and Street Works Act (NRSWA).
	Traffic Management Act.

Guidance:

Scottish Government	Controlling Light Pollution and Reducing Lighting Energy Consumption
ILP	Guidance notes for the reduction of obtrusive light.
ILP PLG02	The application of conflict areas on the highway.
ILP PLG03	Lighting for subsidiary roads.
ILP PLG04	Guidance on undertaking environmental lighting impact assessments.
ILP PLG08	Guidance on the application of adaptive lighting.
ILP TR12	Lighting of pedestrian crossings.
ILP TR22	Managing a Vital Asset: Lighting Supports
ILP TR23	Lighting of cycle tracks.
ILP TR25	Lighting for traffic calming features.
ILP TR28	Measurement of Road Lighting Performance on Site.
ILP TR29	White light.

ILP GP03	Code of practice for electrical safety in highway electrical operations.
ILP GP10	Safety during the installation and removal of lighting columns etc.
ILP Guidance	Bats and Lighting in the UK.
ENA	Engineering Recommendation G39/1.
Secure by Design	Lighting against crime.
Traffic Signs Manual (Chapter 8) – Traffic safety measures and signs for road works.	
Edinburgh Street Design Guidance	
A Sustainable Lighting Strategy for Edinburgh – approved by the City of Edinburgh Council’s Planning Committee on 14 June 2012.	
Old and New Towns of Edinburgh World Heritage Site Management Plan 2017 – 2022	

Appendix 2 – Adaptive Street Lighting Request Form

Referring Officer/Councillor:

Locality Office:

Request Location (Street/Post Code):

Case allocation number (CCTV):

Description of Incidents Causing Concern	
Evidence of Incidents Causing Concern (APP reference numbers, Case Numbers, Statistics etc.)	
Additional resources if there is any planned activity in the area	
Initial Timeframe	

Signed:

Date:

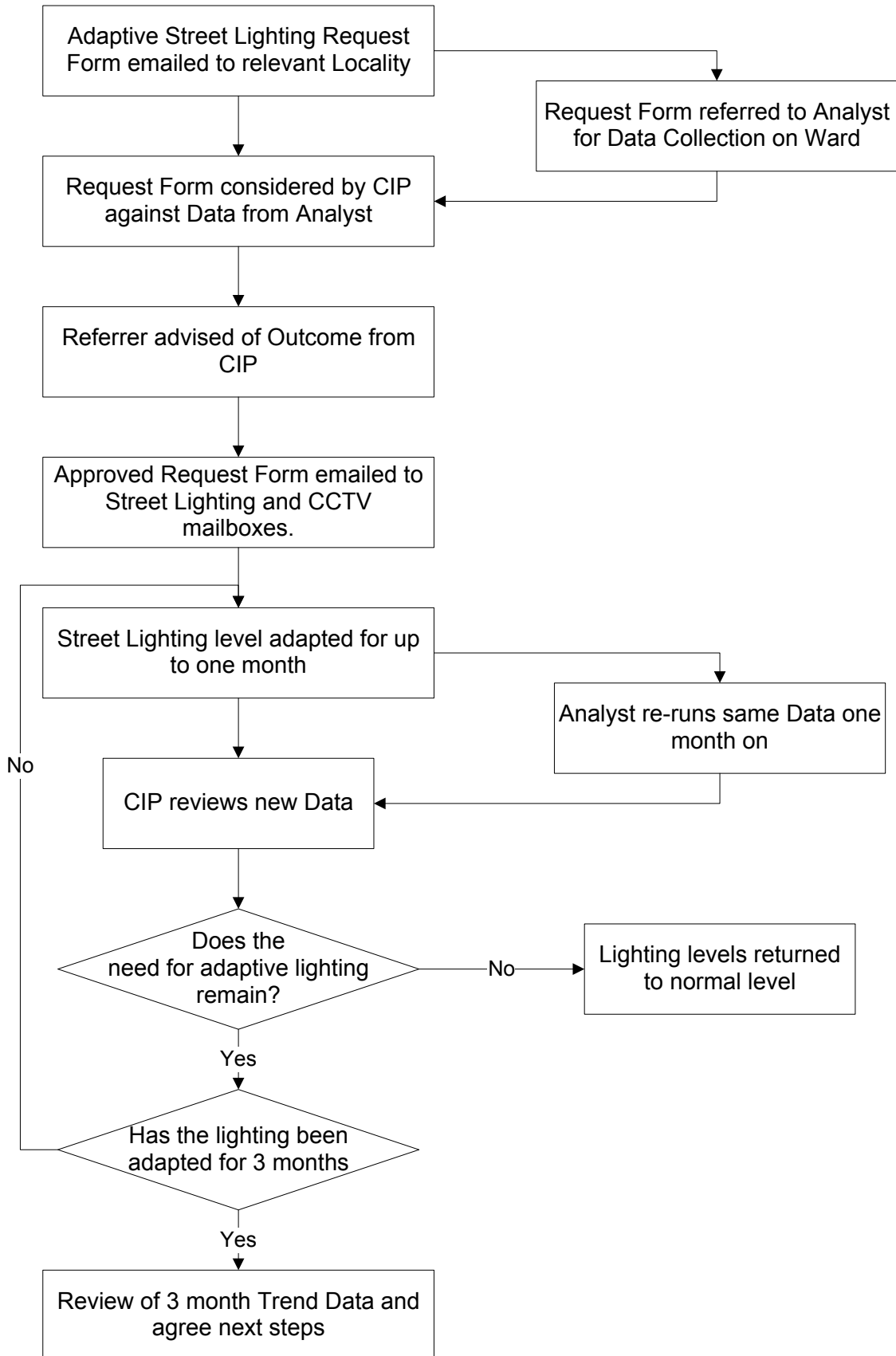
Locality Manager/Family & Household Support Manager Signature:

Date:

Review Stage	Continue Lighting Increase	Return to Normal	Approved by
1 st Review Date of CIP Meeting			
2 nd Review Date of CIP Meeting			
3 rd Review			

Date of CIP Meeting			
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Appendix 3 – Adaptive Street Lighting Approval Process



Appendix 4 – Glossary of Terms

ANPR	Automatic Number Plate Recognition
CCTV	Close Circuit Television
CIP	Community Improvement Partnership
CMP	Carbon Management Plan
CMS	Central Management Service
CRC	Carbon Reduction Commitment
DNO	Distribution Network Operator
ILP	Institution of Lighting Professionals
LED	Light Emitting Diode
PECU	Photo-Electric Cell Unit
UMSUG	Unmetered Supply User Group
WEEE	Waste Electrical and Electronic Equipment

Appendix 5 – Contacts

Reporting of Faults:

Council Contact Centre	0131 200 2000
Clarence (Freephone) Service	0800 23 23 23
Council Website	www.edinburgh.gov.uk