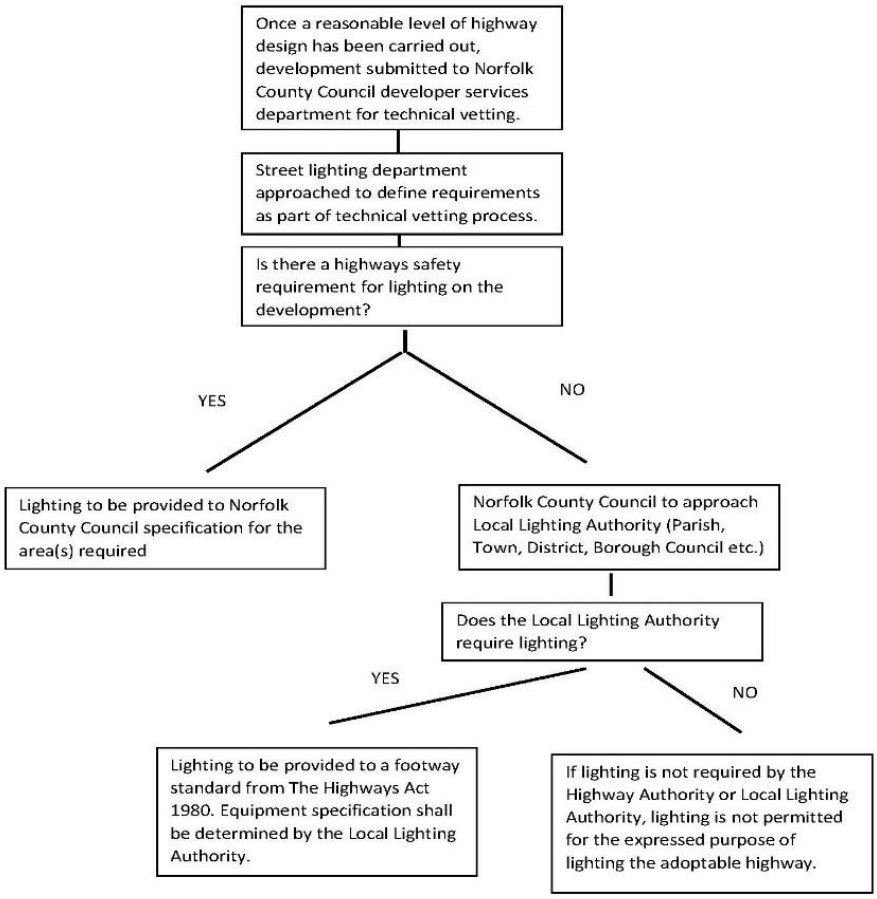
Norfolk County Council Street Lighting Developer Specification

Norfolk County Council (NCC) adopts lighting designed to a highway standard (as defined in the Highways Act 1980) on new adoptions of public highway, or amendments to existing highway if the development in question is in an environmental zone where lighting is permitted and there is a clear highway reason to adopt new lighting. If Local Lighting Authorities (i.e. Parish, Town, Borough and District Councils) require lighting on estates within village envelopes in Rural Areas, then this will have to be a 'Footway Standard' (as defined in the Highways Act 1980) and adopted by the Local Lighting Authority.

Figure 1 Chart showing the process for determining the need for lighting on a new development (or on amendments to existing highway)



- Once a reasonable level of highway design has been carried out, the development gets submitted to the NCC developer services department for technical vetting
- The street lighting department will define the requirements as part of the technical vetting process
- If there is a highways safety requirement for lighting on the development, it will be provided to NCC specification for the area(s) required
- If there is not a highways safety requirement for lighting, NCC will approach the local lighting authority (Parish, Town, Borough, and District Councils)

- If the local lighting authority requires the lighting, it will be provided to a footway standard (as defined in The highways Act 1980). The local lighting authority will determine the equipment specification.
- If the local lighting authority do not require the lighting for the purposed of lighting the adoptable highway, it is not permitted.

1.0 General

1.1 This document identifies the basic principles and standards for street lighting required by the Lighting Authority. However, this document does not supersede the Lighting Authority policy for street lighting.

1.2 The Lighting Authority reserves the right to alter or amend the standards contained within this document as deemed necessary.

2.0 Requirements for Lighting

2.1 The Developer shall adhere to the requirements as outlined in this Specification.

2.2 The Developer shall be responsible for undertaking any amendments to existing lighting equipment which is affected as a result of their proposals to the full extent as required by relevant standards and best practice.

2.3 Where it is determined that lighting should be provided, extended or improved, the Developer shall be responsible for the supply and installation of that lighting equipment and the associated electrical connections.

3.0 Design Approval

3.1 Where street lighting is to be adopted by the Highway Authority, lighting design works shall be approved by Amey, Norfolk Street Lighting PFI, Brooke Depot, Norwich Road, Brooke, NORWICH, NR15 1HJ. As the County Council's Street lighting service provider, Amey self-certify their designs, however if another consultant is used to carry out the design, they must submit the proposals to Amey for approval which will incur a charge.

3.2 Designs shall be undertaken by a competent Lighting Designer with relevant skills, knowledge and experience to carry out their duties in accordance with the Construction (Design and Management) Regulations 2015 (CDM 2015).

3.3 In order for approval to be given, lighting designs must demonstrate compliance with the requirements of the relevant industry standards and this Specification.

3.4 Lighting scheme design approval shall be obtained in writing from Amey prior to commencement on site. If the highway or property layout is changed from that used for the approved lighting design, or lighting cannot be installed as per the approved lighting layout, the approval of the lighting proposals shall be withdrawn, and the developer shall be required to provide a revised lighting proposal for approval.

4.0 Documentation Required for Approval

4.1 All information specified is to be sent electronically to Amey. The following information will be required for approval:

(i) Location plan
(ii) Highway adoption plan
(iii) Lighting design calculations including electronic calculation files, all input data and details of the software package that has been used (lighting plots alone are not acceptable)
(iv) Details of design consideration(s) made
(v) Survey pictures for S278 schemes
(vi) Details of all equipment proposed with supporting certification and documentation (if not detailed in this specification)
(vii) Details of power supplies, including cable calculations and schematic drawings (where required)
(viii) Column / DNO Connections schedule with Northings and Eastings
(ix) Lighting design drawings – with Lux ISO contours showing the maximum permitted lux levels for light intrusion into windows both pre and post-curfew (see Table 2 in ILP's GN01:2011) in DWG and PDF format
(x) Passive safety risk assessment (where required)
(xi) Details of signing layout including supply connections
(xii) CDM details (Designer Risk Assessment, H&S File etc.)
(xiii) Environmental considerations such as planning conditions relating to lighting (where applicable).
(xiv) Confirmation of column structural suitability for reuse where columns are to be reused/relocated.

4.2 Lighting Design construction drawings shall;

(i) Be no larger than A1
(ii) Be at a scale of 1:500 or less (i.e. 1:200 etc.)
(iii) Have a minimum text size of 2.5mm for A1 drawings and 1.8mm for A3 drawings
(iv) Have cut lines where required
(v) Have a North point
(vi) Shall have a key where symbols can be identified when the drawing is printed in colour or black and white
(vii) Show overhead lines (LV, HV and BT), and major services (e.g. HV cable, intermediate pressure gas, etc.)
(viii) Highlight significant hazards that the installer of the street lighting furniture and Lighting Authority shall have to allow for.

5.0 Design

General

5.1 All lighting designs shall be in accordance with BS 5489 and BS EN 13201 (latest editions) or other standards that may be appropriate subject to approval first.

5.2 All electrical designs shall be in accordance with BS 7671 (latest edition) or other standards that may be appropriate subject to approval first.

Design Consideration

5.3 When approved by the Lighting Authority, a foot path or cycleway may be considered independent from the adjacent carriageway. Where this is the case the lighting for the foot path or cycleway shall have a separate calculation grid from the carriageway. Foot paths and cycleways which required separate calculation grids may have a different lighting class classification from the carriageway.

5.4 The street lighting system must be an integral part of the design of the estate and sufficient space for the installation of street lighting shall be provided.

5.5 Columns shall be located on highway land adopted by the Highway Authority.

5.6 Columns shall not be placed in a shared surface area.

5.7 Any proposed ducting plans should be referred to the relevant Tree Protection Officer.

5.8 Any planning conditions relating to lighting are to be brought to the attention of both the Lighting Authority and lighting designer.

5.9 On housing estates, columns shall not be located outside property windows. It is preferred that columns be located away from building frontages, however the designer may locate column on the party line of two adjacent properties, or in line with the side wall of a building.

5.10 Lighting columns shall be located at the back of any footway or shared use cycling facility wherever possible. Columns shall be set back not less than the recommended minimum clearance from the carriageway as set out in BS 5489.

5.11 Where no footway exists, or in over-runnable margins, columns shall be positioned in an adoptable pad not less than 0.75m x 0.45m in area. If this is not possible, consultation will be required with the Highway Authority's Street Lighting and Network Safety Team to agree a suitable alternative. Adoptable pads must be included and positioned exactly as detailed on the S38 Layout Plans and should not be provided in alternative positions.

5.12 Due consideration is to be given to trees and their growth, traffic calming, parking and pedestrians when deciding the locations of lighting columns. As a guide, streetlighting shall not be located within 5.0m of any existing or proposed tree. Any landscaping plans, including locations of proposed trees, are to be provided to the lighting designer so that lighting column locations can be co-ordinated.

5.13 Street lighting located within or adjacent to conservation areas, and in other environmentally sensitive areas, may require heritage style equipment at the discretion of the Lighting Authority. The designer is required to liaise with the relevant conservation officer regarding suitable equipment specification. This may attract a commuted sum.

5.14 The lighting arrangements shall be co-ordinated with any traffic signing, signalling and surveillance installations so as to not interfere or pose a risk to electrical or highway safety.

5.15 Maintenance factors shall be as per manufacturer's guidelines using a six yearly bulk clean and, if applicable, change cycle. All new LED equipment to have a useful life up to 100,000 hours.

5.16 Lighting designers shall take into account guidance given in the ILP 'Guidance for the Reduction of Obtrusive Light'.

5.17 Any passive safe proposals will need to be approved by Norfolk County Council's Network Safety Team.

5.18 The lighting designer shall provide a lighting design that reduces or eliminates the need for passive safe street lighting columns.

5.19 Lighting designers shall identify the most appropriate and acceptable type of modern lighting for locations in rural, environmentally sensitive and conservation areas.

5.20 The designer shall ensure that the design is the most economic by maximising column spacings, to minimise the number of columns and energy used as well as to minimise the installation, operating and maintenance costs.

5.21 The highway boundary is to be shown on all design drawings and shall be updated as and when there are updates to the highway layout.

5.22 The design drawing is to be revised each time it is submitted for approval, any changes since the previous revision shall be shown with revision clouds.

Equipment Specification

5.23 All new street lighting furniture shall be in accordance with this specification unless agreed by the Lighting Authority.

5.24 Electrical equipment shall be stored in weatherproof accommodation.

5.25 The Developer shall ensure that the equipment supplied is compatible with all other equipment with which it is associated.

5.26 Manufacturers shall be certified for the manufacture, supply and verification of apparatus under BS EN ISO 9001.

Local Lighting Authority (LLA) Street lighting

5.27 Where LLA street lighting is being amended as part of a S278, or new lighting proposed as part of a S38 agreement, proposals will need to be approved by both the LLA and the Highway Authority Street Lighting Team.

5.28 LLA street lighting will need to be provided to a Footway Standard as defined in the Highways Act 1980, whereby no streetlight is mounted above 13 feet (4 metres) or where no streetlight is mounted more than 20 feet (6 metres) above ground level and there is at least one interval of more than 50 yards (45.75 metres) between adjacent streetlights in the system.

6.0 Control

General

6.1 Where Street lighting is required as part of a new development or amendments to the existing highway network, all new equipment shall be controlled via the Lighting Authority's Urban Control CMS System. The developer will need to discuss the CMS options with the supplier, who can be contacted at info@urban-control.co.uk. If the lighting installation is within the vicinity of an existing mesh network, the lighting will need to connect to this system. If this is not the case, the Urban Node 324 (cellular) will be required with a provision of 20 years of data.

Photocells

6.2 When photocells are used (by agreement only) the switching shall be 35/18 Lux on/off.

7.0 Mounting

7.1 All luminaires shall be mounted post top unless otherwise agreed with the Lighting Authority.

7.2 No adoptable lighting shall be installed onto buildings. Any issues with column installations shall be discussed and agreed with the Lighting Authority and their service provider, Amey.

8.0 Conflict Areas

8.1 Conflict areas will be designed as follows:

(i) Conflict areas shall be illuminated to the relevant class as outlined in BS 5489.

(iii) The application of the conflict area shall be as ILP PLG02.

(iii) The minimum Glare Class permitted for conflict areas should be no less than the minimum Glare Class used on the approach roads.

9.0 Other

9.1 Zebra crossings shall be lit to ILP TR12.

Refuge Beacons

9.2 Refuge beacons shall be designed in accordance with the requirements of the Traffic Signs Manual Chapter 4 which states:

The purpose of the beacon shall be to indicate the presence of a refuge which might be obscured by other traffic, the brow of a hill or a bend. It is not normally necessary on refuges which carry lighting columns or traffic light signals.

Belisha Beacons

9.3 Belisha beacons shall be designed in accordance with the requirements of the Highway Authority Traffic Engineer, our preference is for Belisha Beacons with additional beacon illumination. All proposals will need to be approved by Amey.

9.4 Belisha beacons shall be designed in accordance with the requirements of the Traffic Signs Regulations and General Directions (TSRGD).

Illuminated signs and bollards

9.5 Any illumination of signs or bollards will need to be in line with the Traffic Signs Regulations and General Directions (TSRGD) unless otherwise agreed with the Highway Authorities Network Safety Team.

9.6 A DNO service is the preferred supply type, however where this is not possible, private cable network or solar powered supply type can be considered but will need to be agreed with the Lighting Authority.

9.7 Proposed drawings will need to show location, supply type and specification of apparatus for approval.

Vehicle Activated Signs/Wigwag

9.8 Any new apparatus to be agreed with the Highway Authority.

9.9 Any proposals (new or amendments to existing apparatus) will need to be shown on a design drawing and approved by the Lighting Authority. Details will include location, supply type and specification of apparatus.

10.0 Electrical Services

10.1 All electrical supplies for connection to the street lighting system will be arranged and paid for, (including energy) by the Developer, until adoption by the Lighting Authority.

10.2 All apparatus shall be supplied by an underground service connection onto the DNO's underground low voltage distribution system, if this is not possible consultation will be required with the Lighting Authority and Amey to agree a suitable alternative (i.e. dedicated private cable network is by exception only).

10.3 DNO cut outs shall be located at the bottom of the backboard and a secondary double pole isolator shall be installed above, fused appropriately for the equipment taking into account fuse discrimination.

10.4 All electrical supplies shall be unmetered unless agreed at the design stage with the Lighting Authority.

10.5 DNO (or IDNO) services shall be single way service cut-out. Two-way looped cut-outs shall not be used.

10.6 Where private cable networks are permitted for street lighting, they must be separate from any traffic signals private cable networks. A seperate feeder pillar with DNO supply for the street lighting shall be provided in such instances. Dedicated street lighting infrastructure shall not be used to provide a supply to traffic signals equipment.

IDNO

10.7 The Lighting Authority's preference is for the Developer to utilise DNO connections. If IDNO's are used, the Developer shall provide the Lighting Authority with details of the IDNO and the emergency contact details kept in the base of the lighting equipment and shall be included in the information in the Health and Safety File.

11.0 Installation

11.1 Installation shall be carried out in accordance with the approved layout.

11.2 The Developer shall be responsible for the complete installation and commissioning of each unit.

11.3 Street lighting works shall be carried out by a competent contractor who shall be registered under the Highway Electrical Registration Scheme with operatives that are suitably qualified under the National Highway Sector Scheme 8. The Lighting Authority may request proof of accreditation and authorisation of any subcontractor to perform such duties. The Lighting Authority reserves the right to request a resubmission of any test certificates.

11.4 Where the Developer intends to use a contractor other than Amey to carry out S278 street lighting works, they must notify the Lighting Authority (with Amey Cc'd) with the details of the work being carried out, the date work will commence and contact details of the contractor carrying out the works. Until such time as the works are adopted the responsibility of the assets will be transferred and remain with the Developer.

11.5 Where street lighting already exists, the Developer shall maintain an adequate standard of road lighting throughout the duration of the works. Where columns have to be re-sited our preference would be for same day disconnect/reconnection of the lighting. Where this is not possible, adequate temporary lighting shall be provided and shall be operational before disconnecting existing street lighting. Temporary lighting proposals shall be submitted to the Lighting Authority for approval.

11.6 The street lighting and electrical installation shall be inspected and tested in accordance with BS7671 and the Department for Transport's Specification for Highways Works – Series 1400.

11.7 Copies of electrical test certificates for each individual asset shall be passed to the Lighting Authority within 28 days of inspection, and prior to any inspections being carried out by the Lighting Authority.

11.8 Where it has been agreed that existing columns may be retained as part of the permanent works, structural testing shall be undertaken in line with nationally recognised methods and copies of the certificates shall be supplied to the Lighting Authority.

12.0 Pre-Adoption (Maintenance) Period

12.1 It shall be the Developer's responsibility to ensure that prospective purchasers are fully aware of any lighting provisions and the locations of any such street lighting furniture. The Developer will also need to ensure any prospective purchasers know who is responsible for the lighting until it is adopted by the relevant authority. Any relocation of equipment shall be at the Developer's expense, prior to handover and shall be within design parameters or included in a complete re-design of the scheme.

12.2 The Developer must provide the most current 'Amey approved' design drawing before any street lighting inspections can be carried out by the Lighting Authority.

12.3 The Developer is responsible for all maintenance until such time as the installation is formally adopted in accordance with the relevant agreements.

12.4 The Developer shall be responsible for the mitigation of light intrusion, such as installing shields if required from the residents or the Lighting Authority.

12.5 For Section 38 developments, the Developer shall be responsible for all energy and maintenance costs until the date of adoption and will require their own Meter Point Administration Number.

12.6 For section 278 developments, the developer shall be responsible for all energy costs associated with any new apparatus, the developer will also be responsible for the maintenance cost associated for any apparatus effected by the S278 works. These responsibilities will transfer to the Lighting Authority upon issue of the completion certificate.

12.7 Emergency Repair - The Lighting Authority holds the right to make safe, or cause to be made safe, any equipment on existing highway that is dangerous (e.g. though vehicular impact damage, etc.) and all reasonable costs shall be chargeable to the Developer.

12.8 The Developer shall not offer equipment for inspection by the Lighting Authority, until such time as they are confident that all works have been completed satisfactorily as specified by the Lighting Authority and in accordance with this document. Any costs incurred for undertaking

additional inspections in addition to the interim and final inspection (e.g. re-inspections) will be charged back to the Developer.

12.9 The following documents will be required before the Lighting Authority will carry out any inspections:

- Approved As-built street lighting drawing(s) and any associated schedules, schematics, etc.
- Complete electrical test certificates for all units to be adopted.
- S38 or S278 plans with adoption extents shown.

13.0 Adoption

13.1 Once the site is ready for adoption (after the maintenance period), a final inspection will be carried out by the Lighting Authority.

13.2 If the development is not adopted within 5 years of the lighting layout approval date, the Lighting Authority reserves the right to review the suitability of equipment installed and may require it to be upgraded. Where equipment has become obsolete, due to delays in the adoption process, equipment will need to be upgraded. Any such costs will need to be met by the developer.

13.3 Where equipment has less than 90% residual design life remaining since its installation, the Lighting Authority reserves the right to review the suitability of equipment installed and may require it to be upgraded.

13.4 A bulk lamp / LED array change may be required by the Lighting Authority dependent on scheme life.

13.5 Only when the Lighting Authority is satisfied that all equipment has been installed and all issues resolved will the street lighting system be accepted for adoption.

14.0 Commuted Sums

14.1 Where new and additional streetlighting assets are provided under a S278 agreement, a commuted sum will be required to cover 30 years of energy and maintenance costs.

14.2 For S38's, commuted sums will generally not be required unless (subject to the agreement of the Lighting Authority) non-standard materials are specified. A Commuted Sum shall be calculated and agreed prior to the granting of technical approval. The Commuted Sum shall be payable to the Lighting Authority prior to adoption of the completed scheme.

14.3 Where a higher standard of materials is installed without the agreement of the Lighting Authority and/or where a Commuted Sum has not been paid, then adoption will not be granted.

14.4 Where a Local Lighting Authority is adopting the street lighting, they may require a Commuted Sum prior to adoption, however this will need to be discussed between the Local Lighting Authority and Developer seperately.