

Maintenance & Inspections Strategy: Street Lighting

2026

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Maintenance & Inspections Strategy:

Street Lighting

1. Introduction

The Essex County Council (ECC) Highways Street Lighting Maintenance & Inspections Strategy has been reviewed to take account of the recommendations and best practice set out in the 'Well-managed Highway Infrastructure: A Code of Practice' 2016, published by the UK Roads Liason Group (now the UK Roads Leadership Group).

The Code of Practice is designed to promote the adoption of an integrated asset management approach to highway infrastructure based on the establishment of local levels of service through risk-based assessment.

This document supports the overarching ECC Highways Maintenance Policy. It sets out and describes the service levels relating to Essex County Council's risk-based approach to managing, organising, inspecting and maintaining the Street Lighting Network for which it is responsible.

Alongside this strategy will be supporting documents that set out the processes & procedures to be operated.

This strategy covers the following key areas:

- Network
- Inspections and testing
- Defects
- Maintenance

2. Essex Street Lighting Network

Essex is the third largest local lighting authority in the country. As of April 2024 (latest figures for whole financial year) the number of assets for which ECC is responsible is approximately:

- 131,500 street lights
- 11,500 illuminated signs
- 1,400 Illuminated bollards

ECC is not responsible for all of the street lights within the county on adoptable highway; parish and district councils own and maintain street lights as well. If it has been established that the highway is either private or not adopted by ECC, then the responsibility remains with the asset owner. This may mean that residents are required to conduct further research to establish which organisation has responsibility for the light(s) for which they have a related enquiry. ECC is unable to assist with verifying the ownership of the street lights under these circumstances, other than verifying that ECC does not have responsibility for the asset.

3. Street Lighting Asset Management System

ECC uses a dedicated asset management system for its street lighting operations called Mayrise. ECC only has responsibility to record Council- owned street lighting assets on Mayrise. However, Mayrise may also have some records that refer to street lights of other asset owners.

Mayrise is regularly reviewed to ensure the data is kept current and accurate. The Asset Management Lighting team endeavours to ensure that any street lighting assets adopted by the Council are recorded on Mayrise. This is essential to ensure that management of the maintenance process meets legal obligations and provides information for the calculation and tendering for electrical energy.

Mayrise holds data that includes dated records of operations or repairs carried out including both routine and non-routine (ad hoc) maintenance.

4. Part-night Lighting

ECC operates part-night lighting in certain areas of the county in accordance with the published exception criteria, which can be found on the Council's website. This means that for these areas, lighting is not necessarily provided for the entire duration of darkness but between specified time periods only.

5. Inspection – Strategy and Service Levels

5.1 General Principles for Completion of Inspections

ECC requires that inspections are carried out by trained personnel in the manner deemed appropriate for the particular type of inspection in question (see below). The safety of the highway officer undertaking the inspection will always be of paramount consideration in

determining the method of inspection.

Inspections fall into the following types:

- Electrical Inspection and Testing
- Structural inspection and Testing
- High Mast Inspection

In addition to the inspections listed above, street lighting assets are also visually inspected for obvious signs of damage and condition decline as part of the routine safety inspections carried out by Highway Inspectors (HI), as per the current edition of the ECC 'Maintenance & Inspections Strategy: Carriageways, Footways & Cycleways' published on the Essex Highways website. The frequency of these inspections depends on the hierarchy and type of network upon which the street lighting asset in question is located.

In the event of conditions that affect business continuity, for example, severe weather events, or outbreaks of illness, the inspections may be suspended and re-programmed at the decision of the Inspections Manager.

5.2 Inspection Frequency

The inspection frequency for street lighting assets (table below) is aligned to various inspection requirements set out in best practice guidance, formal regulations, and legislation.

Sub Feature	Inspection Type	Inspection frequency
Electrical Inspection and Testing	Testing	Once every 6 Years
Visual Inspection	Visual Inspection by Highway Inspector	As per current edition of the ECC 'Maintenance & Inspections Strategy: Carriageways, Footways & Cycleways', referenced in 1.3.1
Structural Inspection and Testing	Non-metallic Column Testing	Once every 3 Years
	Metallic Column Testing	Once every 6 Years
High Mast Inspection	Annual Inspection Principal	Annually, detailed in 1.3.5.1
	Inspection	Once every 4 Years, as detailed in 1.3.5.2

As far as possible inspections are planned to be undertaken within the calendar month they are due. However, the programme will need to remain flexible to account for holiday, sickness and unforeseen events.

5.3 Electrical Inspection and Testing

In order to comply with the requirements of the relevant legislation and regulations, a 6-year rolling programme of inspection, testing and selected remedial works on the entire network of the Councils owned street lighting assets shall be carried out.

5.4 Electrical Dangerous Situations

During the course of electrical testing, if a situation is observed where immediate danger to the public is apparent then that hazard shall be eliminated or guarded to protect the public. Depending on the nature of the issue, the danger shall immediately be reported to the term maintenance contractor or to the Distribution Network Operator (DNO), to prompt an appropriate response.

During the testing programme, any electrical defects as described in the relevant standards, that are identified shall either be resolved at the time of the test where reasonably practicable or reported to the DNO for an appropriate response. Any defects that are risk assessed as representing an 'Electrical Dangerous Situation', shall follow the process set out above to safeguard the public.

5.5 Electrical Testing Requirements

All equipment shall be electrically tested in accordance with the appropriate clauses of the latest version of all relevant codes/standards.

5.5.1 Electrical Defects

During the testing programme, any electrical defects as described in the relevant standards, that are identified shall either be resolved at the time of the test where reasonably practicable or reported to the DNO for an appropriate response. Any defects that are risk assessed as representing an 'Electrical Dangerous Situation', shall follow the process set out in 5.4 above to safeguard the public.

5.6 Structural Inspection and Testing

ECC carries out inspections and testing to ensure the structural integrity of the street lighting assets are maintained.

Inspections are carried out utilising the guidance provided within the latest version of all relevant codes/standards. ECC carries out the inspections so they comply with set down criteria and conform with the required Non Destructive Testing (NDT) manner.

The structural defects/condition concerns identified and recorded shall be categorised into the following risk-based repair priorities which reflect severity of issue:

Defect Identified/Repair Priority, or Reason for 'Not Testing' at time of test	Response	Risk-based Criteria
Emergency Red	Shall be either 'made safe' to protect public safety within two hours of risk being identified on site. Or permanently repaired/asset replaced, in a time scale which adequately addresses severity of risk.	Structural integrity or condition issue represents immediate risk to highway users, determined by factors such as: • metal thickness loss > 90% at root, • swaged joint loss > 20%, • or significant structural compromise, i.e. asset has collapsed causing road traffic incident (RTI).
Red	Shall be included in capital replacement programme	Structural integrity or condition issue does not represent immediate risk to highway users, but asset requires placement: • Loss of original thickness in the root of the street light $\geq$ 50%

Defect Identified/Repair Priority, or Reason for 'Not Testing' at time of test	Response	Risk-based Criteria
Amber	Requires further investigation. If priority of response subsequently determined does not require resolution within three years, asset shall be retested.	Structural integrity or condition issue does not represent immediate risk to highway users, but asset requires further investigation to determine appropriate response. • Loss of original thickness in the root of the street light between 10% and 49%. • Additional factors may include partial degradation of 'ring shaped area' or environmental wear

Continued below

Defect Identified/Repair Priority, or Reason for 'Not Testing' at time of test	Response	Risk-based Criteria
Green	Satisfactory until next planned inspection/test	Structural integrity or condition issue is low risk and does not require priority of repair to be assigned Loss of original thickness in the root of the street light below 10%, with no significant structural defects identified during testing.
Reason for 'not testing' (at the time of test)	Contractor to notify Street Lighting Asset Management Team which will identify an appropriate course of action to address highway user safety.	Unable to test due to: - vegetation, - unable to locate, - blocked shaft, - Other Note that in the case of vegetation, the test contractor will contact the Street Lighting Operational Team so this can be addressed. Other than this, the reason for failing to test must be noted by the test contractor and communicated to the Street Lighting Asset Management Team so that the reason for test failure can be addressed where this is practicable, and a revised test date programmed on a risk-based priority. Where the reason for failing to test cannot be resolved, the Street Lighting Asset Management Team will identify an appropriate course of action to address highway user safety.

5.7 High Mast Lighting

All High Mast lighting shall be inspected in accordance with the latest version of all relevant codes/standards. A specialist contractor shall be employed to carry out this function countywide.

5.7.1 Annual Inspections

Annual inspections to high mast lighting assets will be carried out according to the latest relevant guidance and in general consists of a ground level visual inspection of most elements.

5.7.2 Principal Inspections

Principal inspections to high mast lighting assets consist of all that is included in the annual inspection, while additionally utilising the use of a Mobile Elevated Working Platform (MEWP) to further inspect elements not visible from the ground.

During Principal Inspections a full structural visual inspection will also be carried out in accordance with the recommended guidance.

6. Defects

6.1 Central Management System (CMS)

ECC has one of the largest central management systems in the world which helps to control the street lighting more efficiently. Sensors on the top of each column detect certain faults/issues, shown below, and sends a report to the asset management system. The reports are subsequently accessed and risk assessed by the Street Lighting Operational Team, which identifies an appropriate priority for repair and accordingly commissions works to resolve.

Item	Issue	Investigatory level
Lamp	Lamp failed	Defect Present
	Lamp cycling (off then on again, repeated continuously without any apparent control)	Defect Present
	Lamp burning during daylight hours	Defect Present
Power/Performance Issues	Telecell internal temperature too high	Defect Present
	Monitoring data missing (no contact for period)	Defect Present

As well as those defects identified by the CMS the Council also receives notification of possible defects from:

- The Highway Inspection Team
- Highways Out of Hours service
- Members of the Public
- Defects recorded during Electrical and Structural tests
- Defects recorded during High Mast Inspections
- Emergency Services
- ECC Cabinet Members and Councillors
- MPs and other Councillors
- Other councils (District, Borough, City, Parish, Town etc.)

6.2 Defect Reporting

ECC receives reports and enquiries relating to condition concerns about its highway street lighting assets from several sources. The Council operates systems that allow these reports to be received either electronically or via traditional methods such as by letter or telephone call. It also operates a system to receive reports or enquiries of an emergency nature outside of normal working hours. When the option to report online is not available to the customer, the website also provides the contact number for the customer to call to report anything that in their opinion is urgent. Note that a report considered urgent by the customer cannot be reported online, as they are required to be reported by telephone to avoid risk posed by potential delay of other reporting methods.

These types of defects tend to be concerns for physical characteristics such as,

but not limited to;

- Leaning columns
- Column damage
- Door open/missing
- Exposed wiring
- Damaged lantern

Any enquiry relating to a street lighting asset must be passed on to the Street Lighting Operational Team to risk assess, this includes enquiries received out of normal working hours.

The Street Lighting Operational Team shall triage the report or enquiry based on their assessment of the priority required for a site visit to address potential risk.

Urgent Enquiries/Reports	Urgent enquiries will be assessed the same working day as received. *
Standard Enquiries/Reports (non Urgent)	Our aim is to have an average assessment response time of 28 working days including site visit if required.*

**During periods of high demand it may not be possible to comply with these response times.*

6.3 Defect Prioritisation

Defects will be defined as follows;

Priority A defects are those that require emergency attendance as they represent an immediate or imminent safety hazard, such as risk of short- term structural failure or imminent risk of electric shock. Please see below for examples and for repair times.

Priority B defects are those that require urgent attendance due to identification of a safety hazard, where the risk is assessed to not be immediate or imminent. Please see below for examples and for repair times.

Priority C defects are those defects that are of lower risk than those defects requiring emergency or urgent attention, but none the less require to be resolved to maintain the provision of the lighting service, to therefore also maintain the associated benefits to road safety for highway users.

Please see below for examples and for repair times.

A	B	C
Asset Damaged Significantly	Inspection Access Door Missing	Lamp Failed/Not Working
Lantern not properly secured to Street Light, i.e. dangling down from street light	Lights out on all Street Lighting assets in Street or locality	Lamp Burning during the daylight hours
Exposed Live Electrical Cables	Belisha Beacon Globe Missing on pedestrian crossing or other asset	Lantern requires replacement

The repair priority response time is defined as the time taken to attend site from the time the defect is reported to the Street Lighting Operational Team. The priorities for repair for the Defect priorities listed above, are shown below.

Defect Priority	Response time to resolve on site	Other Factors for Consideration
A	2hr* also see note 1 below	A higher priority may be given to faults that could be considered more dangerous, such as exposed electrical wiring. A higher priority may also be given where this is warranted by the location of the asset, i.e. where there is a higher risk of interaction with a highway user, such as a lighting column in a high footfall area.
B	24hr*	
C	Within twelve months	Sites will be collated into a programme of repairs for a given area which may include a list of streets, so that efficient works scheduling will result in value for money from mobilisation of vehicles and equipment as well as site attendance.

**During periods of high demand it may not be possible to comply with these response times.*

Note 1: Priority A defects

The person attending site must be competent and where necessary shall be equipped to ensure the site can be 'made safe' to protect public safety, or they shall remain on site until the situation is resolved (the latter may occur if a team with different equipment/vehicle is also required to attend site or if the DNO is required to attend site to make their equipment safe).

7. Capital Replacement Programme

The Asset Management Lighting team shall analyse the data provided by the structural testing & inspection regime and produce an annual asset replacement/repair programme in relation to the available capital funding. Note that the data will also be used for purpose of submitting a business case to enable ECC to make an informed decision on the required level of capital investment required to manage the risks posed by assets requiring replacement.

The programme shall reflect the Defect priorities and availability of investment, i.e. all "Reds" would initially be prioritised for funding up to the point where the available budget is fully allocated, then in the event of investment remaining, 'Ambers' would be programmed.

Resolving 'Ambers' is generally lower cost than 'Reds', therefore the targeting of 'Ambers' when investment is available will help reduce the number of future Reds, which will provide value for money. Where the majority of columns in a road are defective (Reds and Ambers), consideration shall be given to changing all columns in the road to realise efficiency savings through efficient resource scheduling that avoids repeat mobilisation costs over time. However, where investment is limited, 'Reds' only shall be prioritised for replacement/repair.

8. Non-Routine Maintenance

8.1 Illuminated Bollards

Any damaged illuminated bollards and the associated electrical equipment shall be replaced with a non illuminated, self righting, reflective bollard. When changed, the bollard shall be recorded as being non-illuminated and shall be maintained by the routine highways maintenance team.

8.2 Illuminated Signs

Where a replacement sign light is required, an LED sign light shall be used if the sign requires illumination under latest version of all relevant codes/standards. The maintenance or replacement of any highways signage is managed by the routine highways maintenance team.

8.3 High Masts

High masts are major structures that require specialised maintenance. Their heights range from 16 to 30m with their lights being on an assembly which is winched into place. They are normally used in large areas like dockyards, airports etc., although during the 1980's/1990's there was a fashion to use them for road lighting. We currently have 30 assets across Chelmsford, Harlow and Basildon.

8.4 Dual Carriageways

The non-routine maintenance operations on dual carriageways shall be, where possible, incorporated with other highway maintenance functions carried out on the road to reduce traffic management costs.

9. Performance Management

The performance of the Street Lighting Operation Team is monitored via Key Performance Indicators.

10. Key Roles and Competencies

There is a dedicated team whose main function is undertaking Street Lighting maintenance and reactive ad hoc inspections in accordance with this strategy. All members of the team shall be assessed for relevant competence and will receive appropriate training for all tasks undertaken to ensure they meet the minimum required standards for their role and specific tasks.

In addition, all operational site staff, supervisors, managers and as appropriate sub-contractors shall be correctly registered with the appropriate and relevant professional body(ies) and hold the qualifications as required by the relevant codes/standards.

The safety of the site staff will always be of paramount consideration in determining the method of inspection or testing and any maintenance works.

This information is issued by: Essex County Council

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