



**HIGHWAYS AND TRANSPORT OVERVIEW AND SCRUTINY
COMMITTEE – 1 SEPTEMBER 2022**

STREET LIGHTING SERVICE – REVIEW 2021/22

REPORT OF THE DIRECTOR OF ENVIRONMENT AND TRANSPORT

Purpose of Report

1. The purpose of this report is to provide the Committee with information regarding the 2021/22 review of the County Council's street lighting service (non-operations).

Policy Framework and Previous Decisions

2. In April 2016, the Cabinet approved a consultation ('A-Roads to Zebras') on the County Council's approach to highway maintenance and the amendments to its plans and policies set out in the Transport Asset Management Plan (TAMP), Highway Maintenance Strategy and Policy, and Street Lighting Strategy and Policy in line with Government's Code of Practice "Well-maintained Highways" and its subsequent update "Well-managed highway infrastructure - A Code of Practice" (October 2016).
3. In December 2016, the Cabinet noted the outcome of the 'A-Roads to Zebras' consultation and agreed to consult on the draft Highway Asset Management Policy (HAMP) and Highway Asset Management Strategy (HAMS).
4. In June 2017, the Cabinet approved the HAMP and HAMS (updated in December 2020 following consultation with the Lead Member for Highways, Transport and Waste).
5. In September 2017, the Cabinet approved the Highway Infrastructure Asset Management Plan (HIAMP) (updated in October 2020 following consultation with the Lead Member for Highways, Transport and Waste). These plans set the framework for how the street lighting asset is managed across the County.

Background

Strategic context

6. The duty to maintain the highway under Section 41 of the Highways Act 1980 does not imply a duty to provide street lighting (see Cartwright v Derbyshire CC [2006]). Rather, local authorities have a discretion about whether to provide street lights (see Section 97 of the Highways Act 1980).

7. Although a local authority does not have a duty to provide street lighting; once provided, the local authority has a duty to maintain the system in a safe condition. This is because local authorities can be held liable if they introduce a danger to the highway and fail to neutralise it (see *McCabe v Cheshire West and Chester Council* 2014).
8. The standards for street lighting are laid down in British Standard: BS.5489 and European Standard BS EN 13201.
9. Street Lighting touches not only on the issue of preventing road accidents. Section 17 of the Crime and Disorder Act 1998 provides that it shall be the duty of each authority to exercise its responsibilities to do all that it reasonably can to prevent crime and disorder in its area.
10. The highway infrastructure asset in Leicestershire forms a critical part of the social and economic infrastructure that supports the well-being of the County's residents and businesses as well as those in the wider regions. The highway infrastructure asset is a large and diverse asset including carriageways and footways, bridges, street lighting, traffic signals and drainage. It is the County Council's greatest asset which is valued at just under £10.57bn. Maintaining such an asset requires significant funding and many co-ordinated operations. In order to provide the best outcomes, operations must be well managed to extract the greatest value for the funding invested.
11. In February 2015, the Medium Term Financial Strategy (MTFS) 2015/16 to 2018/19 was approved by the County Council. It identified that the Council's discretionary Capital Programme included a £25m 'invest to save' programme to replace all County Council maintained street lights (around 66,000) with LED lighting, including a Central Management System to control the lighting, and the de-illumination of traffic signs on bollards, leading to potential annual revenue savings of £2m per annum (excluding financing costs) by 2018/19. The cost of the project included a £5.1m Challenge Fund Grant from the Department for Transport (DfT). This Street Lighting Transformation Project to replace with LEDs was successfully completed in 2019.

Street Lighting Challenges

12. The Strategy noted that the County Council faced a growing issue relating to the backlog of life-expired lighting columns in need of renewal. At the beginning of April 2020, approximately 16,000 lighting columns (23%) were 30 years old or more (the design life of a lighting column is typically 25 years). These columns have a higher risk of structural failure or collapse.
13. The County Council's strategy for managing the risk to highway users is to undertake a programme of structural testing of the lighting columns, to undertake reactive maintenance as required and to seek appropriate renewal funding to enable the high-risk columns to be replaced (ideally as part of a planned scheme).

14. The other area of concern is the County Council's ageing network of buried electrical cables, most of which are laid directly in the ground. The cable networks supply the broader asset group (e.g., street lighting, illuminated signs and Variable Message Signs). There is an ever-increasing incidence of local cable faults which are becoming uneconomical to repair.
15. The County Council's strategy for managing the electrical safety of this asset group is an annual programme of electrical testing that covers all assets over a six-year period, to undertake reactive maintenance as required and to seek appropriate renewal funding to enable the high-profile networks to be replaced.
16. The County Council's current electrical highway assets consist of:
 - Lighting columns – 69,351
 - All-night lighting (ANL) – 30,554
 - Part-night lighting (PNL) – 38,797 (56%)
 - Illuminated signs – 9,362
 - Beacons and subway lights – 740
 - Twin amber school flashing lights – 583
 - Feeder pillars – 556
 - Vehicle Activated Signs (VAS) – 379
 - Illuminated bollards – 217
 - Cabling network – 404 km

Street Lighting Service Review

17. A review of the street lighting service has been carried out with the following initiatives being introduced to deliver efficiencies.

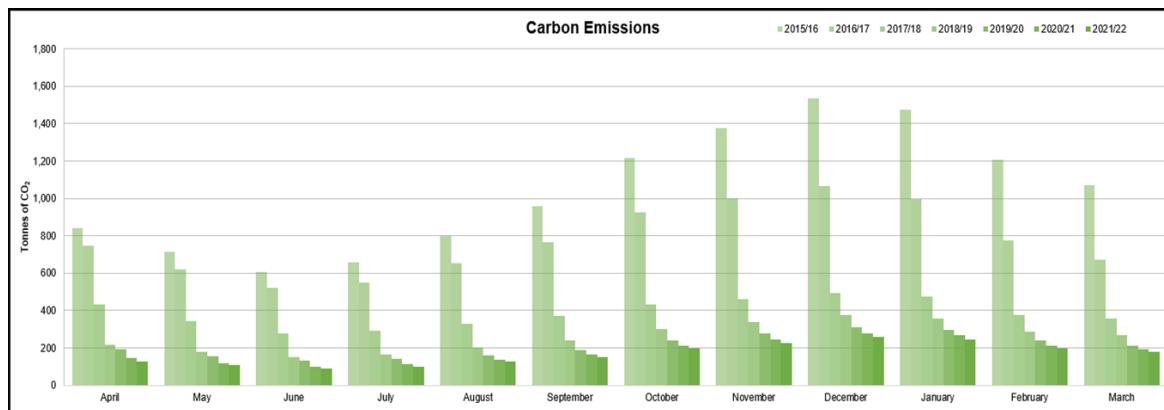
Invest-to-Save – Dimming of residential street lights

18. To support the County Council's 'Clean & Green' Outcome within the Strategic Plan, the lighting programs for all the residential street lights across the County were reviewed to improve efficiency – this was achieved by reprogramming lights to switch on and off at lower ambient lighting levels and by dimming the power levels commensurate with lower traffic flows occurring throughout the night. An additional Lighting Engineer was engaged from an agency to work three days a week to complete the task at a total cost of £29,000 and the project took 10 months to complete.
19. The perpetual full-year savings of this work are estimated as:
 - Savings – £84,000
 - Energy – 495k kWh
 - CO_{2e} – 105 tonnes

20. The implementation of these changes has brought no adverse public comment to date.

Effects of LED conversion, PNL and dimming – Carbon

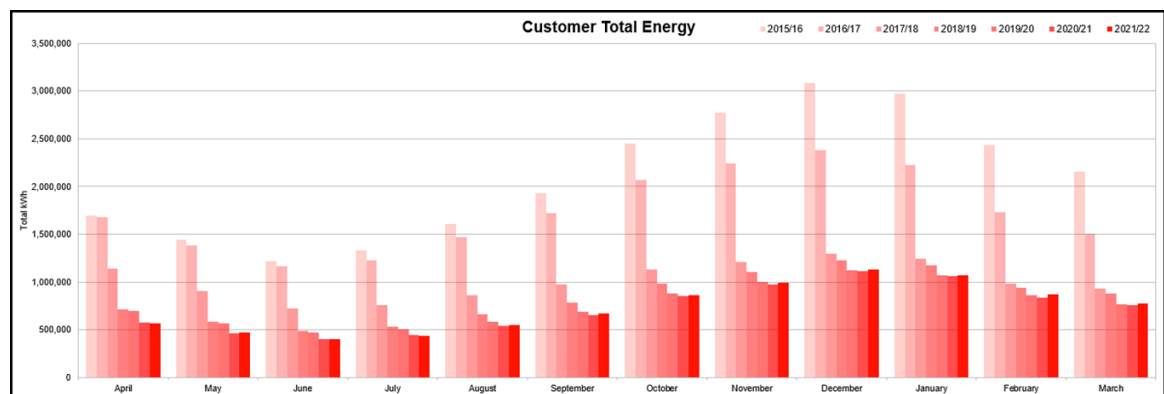
21. Between 2012/13 and 2021/22, the Council's annual CO₂ emissions from street lighting fell from 14,572 tonnes to 2,012 tonnes.
22. This graph shows the Carbon emissions from street lighting and illuminated signs since 2015/16:



23. It should be noted that emissions are also reduced by using more green energy.

Effects of LED conversion, PNL and dimming – Energy

24. Between 2012/13 and 2021/22, annual energy consumption from street lighting fell from 27.4M kWh to 8.8M kWh.
25. This graph shows the energy consumption since 2015/16:



26. Minor increases in the later years reflect the adoption of new assets, for instance where adopted roads on new housing developments increase our street lighting stock.

Safety

27. To support the County Council's Strategic Plan (2022-26) 'Safe & Well' Strategic Outcome, some PNL street lights were switched to ANL for a three-month trial period to assist the Police with their operational activities, often as a result of a spike in local crime or anti-social behaviour.
28. The County Council undertook 16 trials for the Police in 2021/22, and, of the 13 that have finished, 12 were returned to part-night lighting once the Police had completed their activities.
29. The County Council has also supported operational gangs by returning streets to ANL during periods of night-time working on highway maintenance schemes, thus making the working environment safer.

Projects

30. To support the County Council's 'Strong Economy, Transport & Infrastructure' Strategic Outcome, two major projects have been progressed:

Fosse Park/Grove Park Triangle

31. The network around Fosse Park and Grove Park Triangle forms a vital and busy interchange. Numerous defects had been recorded on many of the ageing street lighting assets over recent years.
32. In particular, the lighting assets around the Fosse Park island (columns, feeder pillars and cabling), installed in the mid-1980s, were identified as approaching the end of their useful life.
33. In 2020/21, additional funding of £500,000 was provided as part of a three-year programme to renew all these ageing assets. Work started in 2020/21 and continued in 2021/22.
34. Assets have now been replaced in six of the 12 separate zones identified for the project, as follows:
 - Columns – 78
 - Feeder pillars – 6
 - Cable network – 8,340m
35. It is anticipated that the remaining works will be completed in 2022/23.

Column Replacement Programme

36. In 2020, there were 11,300 lighting columns identified as 'at-risk', indicating that they were working beyond their expected design life.

37. An evidenced-based report determined that a long-term Column Replacement Programme was required to tackle these ageing assets before a catastrophic incident occurred.
38. £1.5m additional funding was allocated for 2021/22 to allow the Programme to commence. A total of 1,323 'at-risk' assets were replaced.
39. £1.3m is allocated to continue the Programme in 2022/23.

Income generation

40. The specialist skills of the Street Lighting team are being used to generate more external income. The developer market is buoyant at the moment and the team submitted 22 quotations for lighting designs in 2021/22, of which 17 have been determined:
 - Successful quotations – 17/17 (100%)
 - Design fees generated – **£42,000**
41. The success in winning design work naturally leads to more opportunities for lighting installation works on site – the value of works generated in 2021/22 was **£367,000**.

Issues and challenges

42. A number of specific issues and challenges exist for street lighting and are described in paragraphs below.

Ageing stock

43. Despite the Column Replacement Programme, the number of columns deemed 'at-risk' is now 11,900 (this number increases as Amber columns migrate to Red over time).
44. Typical defects, often below ground, are shown in the photographs below:



Markfield



Melton

Rising energy costs

45. The electricity tariff increased by 8.6% during 2021/22 and is expected to increase significantly in the current and future years given the significant increase in energy prices we are experiencing. Comparable councils have seen their tariffs increase by 80%.

Carbon reduction

46. There are around 1,400 assets with sodium lanterns that have been adopted since the LED roll-out. These lanterns were compliant at the time of installation and subsequent adoption but produce more emissions than LED equivalents. They need upgrading to LED under CMS control, to allow trimming, dimming and automatic fault detection.
47. There are around 3,000 developer assets awaiting adoption, which will add about 4% to the lighting stock, thus increasing the County Council's carbon emissions and future maintenance responsibilities.

Materials shortages

48. There are ongoing issues with worldwide availability of steel for columns and rare earth metals for semi-conductors and other components which impact our programme delivery and cause inflationary pressures.

Public perception

49. The recent National Highways & Transport Network (NHT) survey result showed only 54.9% satisfaction with street lighting, despite the ongoing achievements in efficiency and carbon reduction. It may prove difficult to change that perception.

Resource Implications

50. In March 2022, the Cabinet considered a report on the Environment and Transport Department's 2022/23 Highways and Transportation Capital Programme and Works Programme. This set out a summary of the budget breakdown for each of the highway's capital lines set out in the refreshed MTFS, including Transport Asset Management, which includes street lighting.
51. These programmes are aligned to the budget envelopes included in the MTFS 2022-26, as approved by the County Council in February 2022.
52. The Street Lighting service received the following funding in 2022/23:
- Capital - £2.0m (Column Replacement Programme & Fosse Park Renewals)
 - Revenue - £2.2m (General maintenance and energy)

53. The challenges set out above of an aging stock, increasing cost of materials and energy combined with the Council's worsening financial position means, that managing the street lighting service moving forward will be increasingly difficult. Despite the significant successes in this service in recent years in reducing carbon emissions and energy costs, it is likely we will have to drive further efficiencies along with considering service reductions.
54. The Director of Corporate Resources and the Director of Law and Governance have been consulted on this report.

Background Papers

Report to the Cabinet – 29 March 2022 – Environment and Transport Department's 2022/23 Highways and Transportation Capital Programme and Works Programme
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MId=6774&Ver=4> (item 108)

Report to the Cabinet – 23 March 2021 – Environment and Transport Department's 2021/22 Highways and Transportation Capital Programme and Works Programme
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MId=6441&Ver=4> (item 498)

Report to the Cabinet – 15 September 2017 - Highway Infrastructure Asset Management Plan
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MId=4863&Ver=4> (item 30)

Report to the Cabinet – 23 June 2017 - Highway Asset Management Policy and Highway Asset Management Strategy Review
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MId=5120&Ver=4> (item 7)

Report to the Cabinet - 9 July 2015 – Future provision of Street Lighting
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MID=4438#AI44381> (item 315)

Report to the Cabinet - 19 November 2014 – Future Provision of Street Lighting
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MID=4438#AI44381> (item 221)

Report to the Cabinet – 26 July 2011 - Steet Lighting Policy
<http://cexmodgov1.ad.leics.gov.uk:9075/ieListDocuments.aspx?CId=135&MID=3126#AI28733> (item 375)

Circulation under the Local Issues Alert Procedure

None.

Equality and Human Rights Implications

55. There are no equality or human rights implications arising directly from the recommendations in this report.
56. Equality and Human Rights Impact Assessments will be carried out in relation to work undertaken on individual projects, where appropriate.

Environmental Implications

57. No detailed environmental assessment has been undertaken. However, the County Council assesses the environmental implications of relevant new policies and schemes at appropriate points during their development.

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