

Divisions Affected - All

**DELEGATED DECISIONS BY DEPUTY LEADER OF THE COUNCIL
WITH RESPONSIBILITY FOR CLIMATE CHANGE, ENVIRONMENT,
AND FUTURE GENERATIONS**

14 NOVEMBER 2024

Dark Skies – Street Lighting Illumination Proposals

Report by the Director for Environment and Highways

RECOMMENDATION

The Deputy Leader is **RECOMMENDED** to:

- a) **Approve the proposed Highway Street Lighting Profiles, specifically with regard to operational hours and illumination levels as set out in this paper.**

Purpose of Report

- 1) Due to the level of expenditure required, and the number of divisions affected, this recommendation is considered to be a Key Decision.
- 2) The purpose of this report is to present and seek approval for a proposed new approach to the provision of street lighting operated by the County Council in support of an initiative to improve 'Dark Skies' in Oxfordshire.

Executive Summary

- 3) The County Council, in its capacity as the highway authority, operates approximately 60,000 streetlights across the county.
- 4) There is a default presumption that street lighting is only provided where deemed to be demonstrably necessary in line with existing policy.
- 5) Where a need has been identified and street lighting has been provided, or is to be provided in the future, the proposed lighting profiles for hours of operation of those lights would apply as set out in this paper.

- 6) It is proposed to change the operational hours of a large (majority) proportion of the street lighting stock to positively contribute towards organisational objectives concerning carbon emissions and the climate emergency.
- 7) It is anticipated that the scheme, once fully implemented, will reduce energy consumption by over 5,000 kWh per day, and realise an annual reduction in carbon emissions and energy expenditure of over 400tCO₂e¹ and £400k² respectively.

Background

- 8) The County Council, in its capacity as the highway authority, operates approximately 60,000 streetlights across the county.
- 9) Notwithstanding that some variances in operation do already exist across the county, it is typically the case that where street lighting exists it is operational all throughout the hours of darkness.
- 10) The level (intensity) of street lighting when operational is primarily dictated by the designation of the road on which the light is installed; being designated either as a;
 - a. *Residential Road*, of which there are approximately 45,000 lights. On these roads frontage development and the surrounding area is made up predominately of residential dwellings and with lighting columns typically under 6m in heightOR
 - b. *Traffic / Connecting Route*, of which there are approximately 15,000 lights. On these roads the primary function of the road is to link settlements or to distribute traffic around a settlement / locality. These are often referred to as 'main' or 'busy' roads and will have a mixed frontage development and lighting columns typically over 8m in height.
- 11) Commissioned by the Department for Transport, *Well Managed Highway Infrastructure*; a national code of practice (CoP) for the management and maintenance of highway assets was published in 2016 and applies across the United Kingdom.
- 12) The CoP promotes a risk-based approach to managing highway infrastructure, including for that of street lighting, and is a concept with which many are already familiar, and which has long been applied to a range of highway management/maintenance activities in Oxfordshire. These include but are not

¹ Based on kWh conversion factor of 0.22535

² Based on an assumed cost of 23p/kWh

limited to, the precautionary winter salting of roads, the prioritisation & remediation of highway defects, and the cleansing of highway gullies.

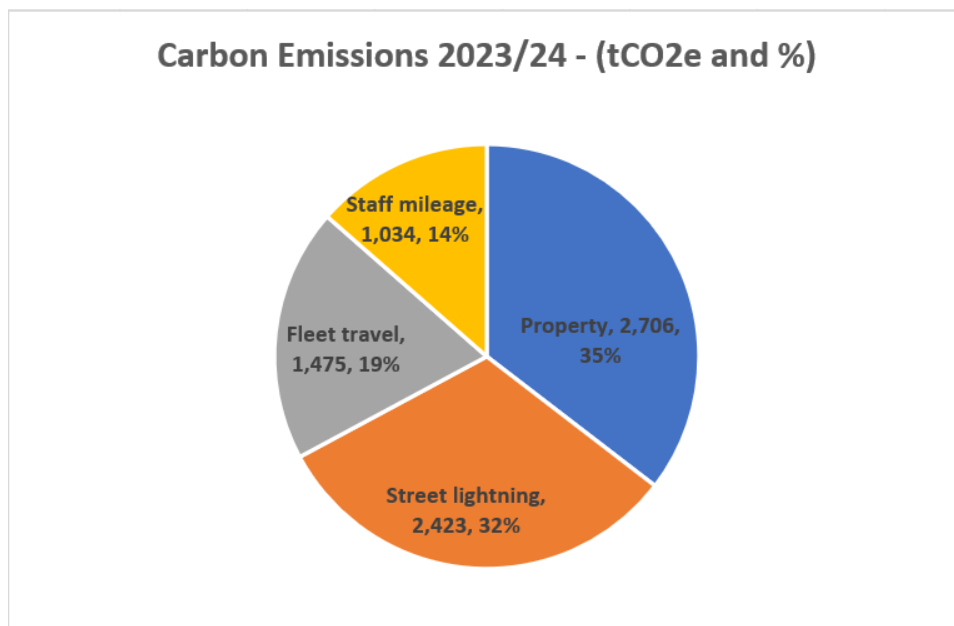
- 13) Within the CoP, the first objective of Part D, which deals with street lighting is, “to encourage delivery of the right quality and amount of light in the right place and at the right time”.
- 14) The CoP acknowledges that lighting like other highway services should be tailored, with service levels being applied commensurate with local needs, priorities, and affordability.
- 15) Schemes or initiatives to operate street lighting at a reduced level, or over only a certain period of the night are often referred to as ‘Part Night Lighting’ (PNL).
- 16) PNL may or may not include other lighting-based innovations such as adjusting the colour & intensity of the light, or connectivity of lighting with other public realm infrastructure.

Proposal

- 17) It is proposed to introduce a new standard for how street lighting is operated across the county (if justified to be required at all), that;
 - a. Minimises the provision (coverage, duration, and intensity) of street lighting to best meet the varying needs of the authority and the network;
 - b. Allows for reasonable diversity of lighting provision to accommodate local requirements;
 - c. Whilst diverse, it is nevertheless observably consistent in its application across the county, and avoids a proliferation of bespoke lighting profiles;
 - d. Is consistent with the substantiated expectations of network users;
 - e. Consolidates existing variances in street lighting across the county
 - f. Is both needs and risk-based.
- 18) The proposed approach seeks to accommodate the positive aspects of street lighting whilst reducing its detrimental impact on the environment and its burden on council resources by better tailoring its duration and intensity.
- 19) All streetlighting for which the County Council has a responsibility for would be within the scope of this initiative.
- 20) Notwithstanding that there are several variants to the proposal, the default and majority position for street lighting under these proposals is that it will operate between dusk - 11pm, and 6:30am - dawn each day, switching off between 11pm

and 6:30am, rather than remaining on all night as most lights typically found across the county do currently.

- 21) Annexe A details the most typical street lighting scenarios across the county and the proposed new operational details (Lighting Profiles) for each.
- 22) Several exclusions / exemptions are included in the proposal whereby lighting would remain on all night. Examples include those lighting alleyways and paths divorced from the carriageway, in subways and where they are required to illuminate certain highway features such as road humps.
- 23) Street lighting is the largest single contributor to the County Council's operational carbon emissions, generating over 2,423 tCO₂e in 2023/24. See figure below for a breakdown of Council emissions.



- 24) The *Campaign for the Protection of Rural England* (CPRE), and *Buglife* both report the negative impact that artificial nighttime light has on wildlife. Some birds, mammals, and a wide range of invertebrates can all be negatively affected.
- 25) Artificial light is reported to negatively affect the migration, mating, feeding, navigating, development, and reproduction of that wildlife with a detrimental effect on the nocturnal pollination of flowers.

Reason for Change

- 26) The proposal is primarily intended and focussed on reducing artificial nighttime light in Oxfordshire.

- 27) Light pollution would be significantly reduced during the affected hours which could reduce the negative impact of artificial light on some wildlife. Each light that is switched off overnight would be illuminated for at least 1,500 fewer hours each year.
- 28) Another important environmental benefit of the proposal is a significant reduction in carbon emissions.
- 29) It is anticipated that the scheme, once fully implemented, will reduce energy consumption by over 5,000 kWh per day, and realise an annual reduction in carbon emissions of over 400tCO₂e³.
- 30) Additionally, the proposal when fully implemented is estimated to reduce annual revenue expenditure on energy by over £400k⁴.

Precedent for Change

- 31) Oxfordshire is not alone in adapting its services to cater for an improved condition with regard to lighting. The draft *Joint Local Plan 2041* for the districts of both South Oxfordshire and the Vale of White Horse includes specific policy measures relating to light pollution and dark skies which seek to ensure that lighting has a clear need and justification, and is the minimum appropriate for its purpose.
- 32) Similarly, Cherwell District Council's draft *Local Plan 2040* also has a specific policy around light pollution and reducing its negative impacts.
- 33) Many local highway authorities across the county have, to varying extents, made changes to the operational hours and levels of illumination of their street lighting stock in pursuit of similar benefits and outcomes as this project seeks to achieve for Oxfordshire.
- 34) At its time of publication, the *Well Managed Highway Infrastructure CoP* acknowledged that local Highway Authorities had been reducing levels of street lighting even prior to the code having been published.
- 35) In their *2020 State of the Nation Streetlighting Survey*, the UK Roads Liaison Group (UKRLG) reported that 116 or 55% of Councils across the UK operated a part night policy, and 198 (or nearly all) authorities operated some form of part night dimming.
- 36) Some of those schemes have been around for many years. A part night lighting scheme has been operated in West Sussex since the 1970s. Most schemes in the country though have been introduced in the last 20 years.
- 37) Whilst a great deal of precedent therefore exists, the 2020 UKRLG survey reports that there is a wide spread of lighting profiles used to manage lantern operation, and no specific profile dominates across the UK. Instead, scheme specifics are

³ Based on kWh conversion factor of 0.22535

⁴ Based on an assumed cost of 23p/kWh

bespoke to meet the needs of each respective authority (as recommended by the CoP).

- 38) Other Highway Authorities continue to implement or extend schemes of reduced highway lighting. Leicestershire County Council, which implemented their part night lighting scheme in 2010, have more recently approved in December 2023 a further reduction of the intensity of their lighting to 30%, taking effect from 8pm each evening (initially on an 18month trial period).

Corporate Policies and Priorities

- 39) The proposed initiative will contribute to the County Councils Priorities concerning the Climate Emergency.
- 40) Reducing the energy consumption of Street Lighting is a key contributor to achieving commitments made in the Climate Action Plan to be a net zero authority by 2030.

Financial Implications

- 41) The works are estimated to require a capital investment of approximately £2.2m, which exists within the allocated capital budget for Street Lighting Adaptation.
- 42) Funding to install apparatus that would allow changes to be made to the operational hours of street lighting was approved as a part of the wider business case in 2018 to convert street lighting to operate on LED lanterns, and to renew life expiring street lighting columns.
- 43) No additional capital funding is required to deliver the project.
- 44) The ordinary budget controls of all capital expenditure will be observed and adhered to throughout the delivery of the project.
- 45) The proposed changes will result in a reduction in the revenue cost of operating the street lighting stock. It is anticipated that once the scheme has been fully implemented this saving would be over £400k⁵ per year.
- 46) The changes also further serve to avoid costs which may otherwise be incurred should the cost of energy increase in the future.

Comments checked by:

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⁵ Based on an assumed cost of 23p/kWh

Legal Implications

47) Various legislation / guidance has been considered, including;

- a. Section 97 of the *Highways Act 1980* gives the County Council the power to provide street lighting.
- b. Regulation 5 of *The Highways (Road Humps) Regulations 1999* requires that road humps are illuminated.
- c. Section 17 of the *Crime and Disorder Act 1998* places on the County Council the duty to consider crime and disorder implications of exercising its various functions.
- d. Section 39 of the *Road Traffic Act 1988* imposes upon the County Council a responsibility for taking measures to prevent road traffic accidents.
- e. The *Traffic Signs Regulations and General Directions 2016* require some traffic signs to be directly illuminated when within a system of street lighting. Traffic sign illumination will not be affected by this initiative.
- f. The design requirements in BS 5489 allow road lighting levels to be lowered during periods of low traffic volumes

48) Notwithstanding each the above, there is no general requirement or obligation to light the highway.

49) The proposed changes to the operational provision of street lighting are within the powers of the County Council.

50) Legal compliance with, and mitigation for both the direct and indirect implications of the proposed changes are to be ensured through the strategic and risk-based application of the initiative as is set out in the proposed Lighting Profiles.

Comments checked by:

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Staff Implications

51) There are no impacts on permanent staff positions in the service.

Equality & Inclusion Implications

- 52) The initiative would be applied across all divisions in the County.
- 53) The initiative would most prominently affect those using the network during hours when street lighting is not operational.
- 54) Anecdotal concerns have been raised in other authorities that the scheme disadvantages shift workers and others who may have a need to use the network at those times.
- 55) Whilst it is accepted that there will always be a level of demand on the network 24hrs a day, the number of users at the times of the proposed reduction in street lighting is relatively low.
- 56) Several risk-based exclusions are proposed to reduce the likelihood of negative experiences by network users.
- 57) Maintaining the full lighting provision would be disproportionate to the substantiated need and risk of those affected by the proposals.
- 58) An Equalities Impact Assessment has been completed and accompanies this report in ANNEXE 5.

Sustainability Implications

- 59) The initiative makes a significant contribution to the sustainability of the service through reduced carbon emissions and an improved environmental condition with respect to artificial nighttime light.

Risk Management

- 60) Notwithstanding the many benefits of the proposal, it is recognised that any changes to the provision of street lighting have the potential for negative or otherwise unintended consequences.
- 61) Most notable and widely perceived with respect to risks for this project are the impacts on road safety and crime / the fear of crime.
- 62) Personal safety is a particular matter of concern for many with initiatives of PNL.
- 63) The intuitive and almost natural preference for lighting based on a perception of improved observation of hazards and improved surveillance is readily understandable, and seemingly logical and rational.
- 64) Given the significant number of authorities that have already implemented PNL schemes, some for many years, there is a large body of evidence that the County Council has considered prior to developing its own proposals.

- 65) The evidence is positive, supportive, and demonstrates that whilst concerns are real, there is rarely substantive evidence of any actual increase in crime or traffic collisions as a result of introducing PNL.
- 66) See ANNEXE 2 for a summary of some of the case studies reviewed.
- 67) Carefully considered and strategically implemented PNL initiatives are therefore able to make significant environmental benefits without being unduly detrimental to society.
- 68) The County Council has proposed several criteria for where lights will be exempt from a change to their hours of operation, and which serve to mitigate negative impacts the scheme might otherwise have had. These can be seen in ANNEXE 1.

Operational Delivery Risks

- 69) Operational risks affecting works delivery such as inclement weather will be managed through the pre-existing governance structure for the service.
- 70) The nature of the work involved is routine with pre-existing procedures in place for effective management.

Consultation

Consultation

- 71) The County Council has an approved policy concerning Electrical Highway Assets, including that of Street Lighting. The policy endorses dimming of streetlights during low traffic periods and a reduction in the operating hours of streetlights.
- 72) The County Council will not formally consult upon, nor seek comments regarding the overall proposal of part night lighting, or the composition of the proposed lighting profiles.
- 73) It is considered that there is sufficient precedent across the country, over a sustained period of many years, and with a strong supporting evidence base for positive outcomes which has already been carried out by peer authorities, industry bodies, and academic organisations.
- 74) It is not considered that Oxfordshire has any inherent attributes, or a network or demographic of any significant difference to those other parts of the country that would warrant or justify a protracted consultation or trial.
- 75) The concept of part night lighting is at this time considered to be an industry standard option.
- 76) Where lights are assessed to no longer be required, and where their permanent de-illumination is recommended, this will be done in full consultation with the relevant Town / Parish Council etc.

77) See ANNEXE 4 for further information on planned engagement with local communities, and how they will be invited to assist the Council in determining the scheme by scheme specification.

Paul Fermer
Director of Environment and Highways

Annex:

1. OCC Lighting Profiles
2. Case Studies
3. PNL Risk Based Exclusion Criteria
4. Engagement
5. Equalities Impact Assessment

Background papers: N/A

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November 2024