

# Street Lighting Trial Update and Future Policy Considerations

Report of the Director of Climate Change, Environment and Transport

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Please note that the following recommendations are subject to consideration and determination by the Cabinet (and confirmation under the provisions of the Council's Constitution) before taking effect.

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## 1) Recommendation

That the Cabinet:

- (a) Approve the proposal for a 12-month trial of the updated street lighting dimming/switch-off regime detailed in this report
- (b) Agrees that the findings of the above trial be reviewed in 2026 to inform a policy update for consideration by Cabinet

## 2) Background / Introduction

This report outlines the findings from Devon County Council's (DCC) recent street lighting trial which ran from 9<sup>th</sup> April - 21<sup>st</sup> May 2024. During the trial, earlier switch off times and further dimming were applied to street lighting in Abbotskerswell, Holcombe Rogus, Kingskerswell and Sidmouth.

The report also takes into account Member feedback from the September 2024 Corporate Infrastructure and Regulatory Services Scrutiny Committee (see item 184 [here](#))

The report makes a recommendation on how this learning could be applied to an extended 12-month trial and ultimately to DCC's street lighting policy in the future.

## 3) Background

DCC's current street lighting policy was approved by Cabinet on 9<sup>th</sup> January 2019 where it was agreed to maintain the current regime of part-night lighting and lowering light levels during the night. DCC currently operates two dimming regimes:

- 1) Main Roads
  - Dusk to 21:30 = 100% output
  - 21:30 to 00:00 = 75%

00:00 to 05:00 = 50%  
05:00 to 06:00 = 75%  
06:00 to Dawn = 100%

2) Residential Part Night Lighting

Dusk to 00:30 = 100% output  
00:30 – 05:30 = 0% (i.e. lights off)  
05:30 – Dawn = 100%

Over the last decade, DCC's street lighting team has focussed on reducing energy usage whilst continuing to deliver day-to-day functions such as keeping the public safe. The LED roll-out programme, along with the introduction of part-night lighting and a stepped dimming regime, have achieved substantial reductions in both the County Council's carbon footprint and, revenue expenditure.

In 2015/16 DCC's street lighting asset used circa 31million kWh of electricity, by 2023/24 this figure had been reduced to just 12million kWh. Given the current energy price of £0.33 per kWh, this equates to an annual revenue saving in excess of £6m.

This report does not propose any change to DCC's main road lighting regime.

#### **4) Recent Trial and Subsequent Proposal**

DCC has been upgrading the street lighting asset to a Central Management System (CMS), which allows adjustments to lighting to be made remotely. Using the CMS, the recent community-led trial aimed to reduce carbon emissions and costs, whilst responding to local needs for lighting.

Prior to introducing changes, an Equality Impact Assessment was completed, and key parties (stakeholders?) consulted, including:

- Devon and Cornwall Police
- DCC's Road Safety Team
- DCC's Ecology Team
- DCC's Legal Team
- DCC's Transport & Engineering Professional Services partner (WSP)
- Cabinet Member for Highways
- The local Elected Members and the respective Parish and Town Councils

Additionally, research was undertaken into the lighting regimes of other similar highway authorities through the South West Highways Alliance Group. Other highway authorities, such as [Hampshire County Council](#), [Leicestershire County Council](#), [Lincolnshire County Council](#) and [Somerset Council](#) are reducing their street lighting costs through extending the time that streetlights are turned off at night and reducing their brightness at certain times.

In the trial, lighting initially changed to 50% output (instead of 100%) from 21:30 at each location, with switch-off beginning at 00:00, instead of 00:30. This reduction was

enhanced over six weeks, e.g., week 1-2: dim at 21:30 to 50%, off at 00:00, week 3-4: dim at 21:00, off at 23:30 etc. as per Table 1.

	Pre-Trial	Weeks 1-2	Weeks 3-4	Week 5-6
<b>Dim %</b>	<b>0%</b>	<b>50%</b>	<b>60%</b>	<b>70%</b>
<b>Lighting output %</b>	<b>100%</b>	<b>50%</b>	<b>40%</b>	<b>30%</b>
<b>Dim timing</b>	<b>NA</b>	<b>21:30</b>	<b>21:00</b>	<b>20:30</b>
<b>Switch off timing</b>	<b>00:30</b>	<b>00:00</b>	<b>23:30</b>	<b>23:00</b>

**TABLE 1: LIGHTING REGIMES DURING RECENT TRIAL**

To avoid bias and ensure a true reflection of community response, whilst the stakeholders listed above were aware of the changes, the trial was not actively promoted., . Following completion of the trial, an online form was used to capture feedback with the results being summarised in section 5.0 of this report.

Based on the findings of the trial, the feedback received, the recommendations from Scrutiny and comparison with the approach taken by other local authorities, this report proposes an extended 12-month trial as follows in Table 2:

	Pre-Trial	Exeter	Market Towns	Rural
<b>Dim %</b>	<b>0%</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>
<b>Lighting output %</b>	<b>100%</b>	<b>40%</b>	<b>40%</b>	<b>40%</b>
<b>Dim timing</b>	<b>NA</b>	<b>21:30 – 00:30 and 05:30 – 06:30</b>	<b>20:30 – 00:00 and 05:30 – 06:30</b>	<b>19:00 – 00:00 and 05:30 – 06:30</b>
<b>Switch off timing</b>	<b>00:30 – 05:30</b>	<b>00:30 – 05:30</b>	<b>00:00 – 05:30</b>	<b>00:00 – 05:30</b>

**TABLE 2: PROPOSED 12-MONTH PART-NIGHT LIGHTING TRIAL**

As with the previous trial, it is proposed that any future policy change would require officers, working with the Road Safety Team, to identify ‘conflict zones’ (e.g. pedestrian crossings etc.) and not change the lighting at these locations unless deemed safe. Equally, as with current practice and the previous trial, if the police highlight a safety concern, the lighting levels would be reviewed and can be altered via the CMS.

If this recommendation is approved in December 2024, it is anticipated that it could be implemented early in the 2025/26 financial year.

## 5) Representations

A feedback form was circulated within the geographic trial areas after the previous trial finished on 21<sup>st</sup> May. This was shared through local Town and Parish Councils and the Cabinet Member for Highways. A total of 193 responses were received.

The feedback form asked participants which date they observed changes to streetlighting (if they noticed any change). Only 28% of responses noting lighting adjustments gave a date that fell within the trial period of 9<sup>th</sup> April – 21<sup>st</sup> May 2024.

- 55 respondents reported noticing a change within the trial period
- 45 respondents reported noticing a change outside the trial period (when no change had been made)
- 93 respondents did not supply a date for observing a change

Of the 193 responses, over 70% were from the Abbotskerswell/Kingskerswell areas.

Area	Responses	Support for wider adoption			
		Agree	Neutral	Disagree	No indication
Abbotskerswell	44	10	3	8	23
Holcombe Rogus	8	2	0	0	6
Kingskerswell	139	18	5	78	38
Sidmouth	2	1	0	0	1

**TABLE 3: SUMMARY FEEDBACK REGARDING SUPPORT FOR WIDER ADOPTION OF REDUCED LIGHTING**

From the feedback, it is notable that:

- The earlier switch-off and/or lack of lighting was referenced most often i.e. 119 times (as stated above though not all observed dates were within the trial period).
- The increased dimming of lighting was noted in only six responses.

Over recent years the Street Lighting Team has received multiple requests, generally from rural communities to further dim and/or switch off streetlights completely. This is in contrast to places like Exeter where the same team has helped expand lighting provision as part of the Safer Streets Fund. The above proposal aims to balance these requests with the trial feedback and wider considerations such as carbon reduction.

The feedback form included a free text box to provide opportunity for other factors to be considered. While it's difficult to quantify free text, responses included a range of considerations. For example, comments were received around the environmental/ecological benefits. Equally, comments were included around feeling unsafe, feeling unheard in their concerns, and the impact on shift workers of reduced lighting.

During the final phase of the trial, concerns were raised regarding the earlier switch-off in some areas. Following agreement with local Members, the team used the CMS to revert to a later switch-off in these areas.

At the September 2024 CIRS Scrutiny Committee, Members considered the trial and subsequent feedback, their discussion included:

- The Committee welcomed Report (CET/24/66) and supported the consideration of dimming streetlighting further than the Report proposals;
- This Committee recognised the uniqueness of Devon and the benefits of the policy consideration on reducing streetlighting, including that on the natural environment, dark skies, wildlife and health and wellbeing, in addition to reducing carbon emissions and costs;
- Members considered that three different dimming regimes were appropriate on the basis of city, market town and rural areas;
- Potential further differentiation by settlement type (e.g. to support the nighttime economy, Safer Streets, impact on shift workers / environmental and ecological factors); and
- Whilst noting the consideration of streetlighting messages to the public (e.g. consistency of approach), other considerations could outweigh this.

It was **MOVED** by Councillor Slade, **SECONDED** by Councillor Brook and **RESOLVED** that given all of the benefits identified above and in Report (CET/24/66), this Committee recommends to Cabinet that a three tier system be considered to take into account the separate needs of city, market towns and rural villages, recognising the importance of dark skies, particularly in rural areas and the benefits to wildlife and the environment.

The strength of feeling around not extending the switch off time, coupled with the relatively few comments regarding additional dimming is noted. Equally, CIRS' ambition to recognise the uniqueness of Devon and the opportunity to benefit the natural environment must be considered. The proposal detailed previously in Section 4 (Table 2) is a direct reflection of this feedback.

As mentioned previously, the team has worked closely with Devon and Cornwall Police throughout the previous trial and in proposing the 12-month extension. Indeed, the local Designing Out Crime Team and the Violence Against Women & Girls (VAWG) Specialist Problem Solver confirmed that there are no objections in principle.

DCC would like to thank Devon and Cornwall Police for their ongoing support in reviewing and commenting on these proposals.

## **6) Technical Data**

The proposal detailed previously in Section 4 (Table 2) is more ambitious than the options originally presented to CIRS in September 2024. If Cabinet agree this proposal, it is expected that a Departure from Standard would be required for the 12-month period (relevant British Standard BS5489-1:2020)

This departure is considered a reasonable choice due to the mitigations in place. For example:

- Lessons learnt from previous trial
- Proposal is for a 12-month extended trial
- If the police highlight a safety concern, the lighting levels would be reviewed and can be altered via the CMS
- Liaison with Police and wider stakeholders
- No changes proposed on main roads or at 'conflict zones'

## 7) Options / Alternatives

In addition to the recommended trial extension, the following options were considered:

### a) Do Nothing

Not utilising the newly installed CMS technology to adapt street lighting regimes would represent a missed opportunity to achieve long-term carbon and financial savings. It would also fail to deliver potential ecological benefits and equally would not respond to requests from some communities or CIRS Committee.

### b) Policy Change

A further option would be to permanently change DCC's policy at this stage. However, given CIRS desire to recognise the uniqueness of Devon and dim further than current Standards, it is felt a 12-month trial represents a good opportunity for review with a view to updating policy in 12-months' time.

## 8) Strategic Plan

By looking to harness new technology and be more dynamic in the approach to street lighting, the recommendation will align well to several Strategic Plan priorities.

Table 4 summarises how the proposals would impact achievement of relevant Strategic Plan actions according to a seven-point scale, whereby -3 represents a large negative impact and +3 represents a large positive impact.

It is noted that for some Strategic Plan actions there will be neutral impact. No negative impacts are foreseen.

Strategic Plan Priority	Strategic Plan Action	Alignment
Responding to the Climate Emergency	Support a green recovery from COVID -19	+3 (Large Positive)
	Ensure resources are used more efficiently	+3 (Large Positive)
	Help wildlife and landscapes to recover	+3 (Large Positive)
	Encourage sustainable	+2 (Moderate Positive)

	lifestyles	
	Continue to reduce carbon emissions across all our services	+3 (Large Positive)
Being ambitious for children and young people	All	Neutral
Support sustainable economic recovery	Ensure financial resilience of the Council	+3 (Large Positive)
Tackle poverty and inequality	All	Neutral
Improve health and wellbeing	All	Neutral It is noted that at CIRS it was commented that this score should be positive
Help communities be safe, connected and resilient	Engage directly with people in meaningful ways and encourage participation in decisions that affect them  Some post trial feedback indicated that members of the public felt unsafe with lower lighting levels	Neutral

**TABLE 4: ALIGNMENT WITH STRATEGIC PLAN**

n.b. Further reference to Equality implications is included in later sections of the report.

## 9) Financial Considerations

During the recent trial, approximately 1600kwh of energy was saved when compared to current policy. At £0.33 per kWh, this equates to a financial saving of circa £530. Given this was from just 550 streetlights over a six week period, scalable savings are clearly achievable (the streetlighting asset totals more than 80,000 units).

With regards to the equipment required, the LED upgrade programme is complete and the majority of lanterns in Devon are therefore LED. The programme to install a CMS across 80% of these lanterns is also progressing well, with circa 50% of streetlights now upgraded (CMS is essential in enabling remote, pre-programmed dimming and/or switch-off).

As such, whilst there is officer time associated with assessing sites and implementing dimming, this proposal is expected to deliver a financial saving.

The minimum target for CMS installation across Devon is 64,000 luminaires, although the team is pushing on to achieve more than this. The split between residential areas and main roads means circa 45,000 luminaires that operate as part night light will have CMS capability.

On the above basis, at current energy prices this proposal could save DCC approaching £300k per annum.

## **10) Legal Considerations**

There is no general legal duty placed on highway authorities to ensure that the highway is lit, including where streetlights are present (although existing streetlights need to be safely maintained). There are certain scenarios where DCC, as the highway authority, does have an active duty to provide lighting (e.g. for a selection of specified traffic calming features) and lighting will be maintained in these areas to ensure that DCC complies with its duties.

In making the decision not to light, DCC will consider the impact on highway users (particularly vulnerable users) in conjunction with DCC's public sector equality duty. Equality considerations are covered in more detail elsewhere in this report.

As mentioned above, scenarios where lighting **must** be provided will continue to be provided during this trial such as, for example, during periods of construction work on the highway. The trial will therefore accord with legal requirements for street lighting.

## **11) Environmental Impact Considerations (Including Climate Change, Sustainability and Socio-economic)**

DCC have been working collaboratively with the Environment and Sustainability Institute and the Astrophysics Group in the Department of Physics and Astronomy at the University of Exeter. This has primarily been achieved through the use of a digital twin to help model and understand the impacts of street lighting changes in Exeter. DCC wish to thank those who have supported this work. Thanks need to be given to Dr Samuel Morrell, funded by Natural Environment Research Council grant no. NE/V000497/1 (PI: Prof. Kevin Gaston), for leading the modelling work and sharing the learning.

### **Carbon savings:**

During the recent trial it is calculated that circa 420kg of carbon emissions were saved. As with the financial calculation previously given, as this was from just 550 streetlights over a six week period, scalable reductions are clearly achievable.

If approved, it is calculated that this policy change would achieve a reduction of circa 225 tonnes of carbon per annum (although this may reduce over time as more energy is generated from greener sources)

### **Ecological Support:**

The proposed changes to streetlighting regimes have received support from Devon County Council's Natural Environment Team. The statement of support noted; 'The proposed plan to switch off streetlights earlier and/or dim them to a lower setting would have clear benefits to the wildlife.' and 'In conclusion, there are clear ecological benefits to the reduction in artificial light at night, and DCC ecology team fully supports the trial to turn off/dim artificial lighting in locations across the county.'



Other benefits highlighted in the statement of support included:

- Reduced disruption for nocturnal species, such as bats
- Minimising insects attracted to light sources, subsequent pollination impacts
- Increased feeding opportunities for wildlife that avoids the light
- Reduced human-wildlife conflict, such as roadkill.

In addition, a recently published study also found that all-night streetlights can make leaves inedible to insects. [Frontiers: Artificial light at night decreases leaf herbivory in typical urban areas \(frontiersin.org\)](https://www.frontiersin.org/articles/10.3389/fenv.2023.1121121/full)

## **Socio-economic impact**

Lighting changes have been requested from many communities throughout Devon, highlighting the desire to have more flexible programs. Considering wider adoption would enable the funds spent ordinarily on electricity costs to be directed elsewhere, providing a wider socio-economic impact from the project.

## **12) Equality Considerations**

Prior to progressing the initial six-week trial in April and May 2024, an Equality Impact Assessment (EIA) was prepared.

Through completing the EIA, network use was considered so that the trial would be inclusive for all communities. Further, the police were consulted prior to, and liaised with throughout the six-week trial enabling safety concerns to be raised. The trial proceeded on the basis that amendments to lighting could be made through CMS at short notice.

The six-week trial aimed to foster good community relations, as it was community-led and initial locations were selected based on previous correspondence and requests.

A further Impact Assessment has been drafted to reflect the recommended 12-month trial for the County, including a statement from the Designing Out Crime Team in Devon and Cornwall Police, who did not raise any objections to the proposal.

## **13) Risk Management Considerations**

The recent trial and subsequent proposal have been considered on the basis that if safety concerns are raised by the police, the lighting levels can be increased remotely, at short notice, using the CMS.

## **14) Summary**

This report has detailed the recent streetlighting trial, summarised the findings and made a proposal on this basis. The proposal details an opportunity to be ambitious in

recognising the County's unique characteristics whilst reducing carbon emissions and costs, responding to local needs for lighting and delivering ecological benefits.

**Meg Booth**

Director for Climate Change, Environment and Transport

**Electoral Divisions:** All

Cabinet Member of Highway Management: Councillor Stuart Hughes

**Local Government Act 1972: List of background papers**

Background Paper CIRS Scrutiny Committee - Street Lighting Trial Update and Future Policy Considerations

Date September 2024

File Reference [3. Street Lighting Trial Update and Future Policy Considerations.pdf](#)

Background Paper: Equality Impact Assessment for trial

Date: April 2024

File Reference: [Streetlighting Trial EIA](#)

Background Paper: Street Lighting Service – Policy and Contract

Date: January 2019

File Reference: [Street Lighting Service – Policy and Contract](#)

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