Cabinet
9 September 2025
New Street Lighting Policy
For Decision

Cabinet Member:
Cllr J Andrews, Place Services

Local Councillor(s):
All

Executive Director:
J Britton, Executive Director for Place Services

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Statutory Authority: Highways Act 1980

Report status: Public (the exemption paragraph is N/A)

1. Executive summary (maximum of 500 words)

This report sets out a new direction for the council's street lighting strategy, introducing a smarter, more sustainable approach to illuminating our highway network. At its heart is a bold recommendation to adopt a new street lighting policy that brings together advanced LED technology with lower colour temperatures, paired with environmental zoning and customising lighting to specific areas.

Using streetlights with lower colour temperatures can bring real benefits. It helps protect people's health, local wildlife, and reduces light pollution, making it easier to enjoy the night sky. This approach underpins the council plan priority to respond to the climate and nature crisis helping to cut energy costs, carbon emissions and reduce the environmental impact.

In addition to this change, our street lighting service provider is exploring a major investment to replace 18,500 outdated lanterns at no upfront cost to the council. In return, they propose taking a 75% share of the energy savings until their contract concludes in 2032. This investment could unlock significant, long term environmental and financial gains for Dorset.

2. Recommendation(s)

2.1 Cabinet is recommended to -

1. Adopt the new street lighting policy for new and replacement lighting in Dorset. The policy includes the new environmental zoning, recommendations for dimming and the use of lower correlated colour temperature (CCT) LEDs in new streetlights, with the CCT typically not exceeding 2700K. The policy also enables town and parish councils to fund additional costs if there is a local preference for alternative equipment such as brackets, columns and lanterns.

2. Agree a key decision to work with our street lighting service provider, who plans to invest in replacing 18,500 outdated lanterns over the next two or three years at no cost to the council. In return, the service provider will receive 75% of the energy savings until their contract ends in 2032.

3. Reason for the recommendation(s)

3.1 Limiting colour temperatures for new and replacement street lighting in Dorset brings health, ecological and dark sky benefits. This new policy takes a Dorset specific approach to street lighting that balances modern technological advancements, health and wellbeing, Dorset's unique environment, our climate ambitions and recognised best practice.

3.2 The council will also realise the cost, carbon savings and ecology benefits of the obsolete lamp replacement programme. This arrangement means the council avoids a £6.5 million capital investment and still benefits from an estimated £100K per year in revenue from its 25% share of the energy savings. This emphasises the multiple benefits of installing lower energy and climate friendly technologies, where lower costs can either offset investment or ongoing revenue costs.

4. The need for a new street lighting policy

4.1 Dorset Council's current street lighting policy identifies the benefits from moving from inefficient old style sodium lights to Light Emitting Diode (LED) streetlights. LED streetlights can reduce energy consumption by up to 60%. This programme has been an integral part of the climate programme for the council due to the reduction in carbon emissions and is a key underpinning programme of the council plan priority to respond to the climate and nature crisis.

4.2 LED streetlights typically have a much whiter light than the old sodium lights. The lighting can also feel very intense if you look directly at the LEDs. Complaints made to Dorset Council show that some people preferred the warmer light that came from the old lighting systems.

4.3 The corelated colour temperature (CCT) of LED streetlights is stated in the temperature unit of kelvin. When CCTs are stated, it is a gauge of how yellow or blue the light emitted is. Warm light is typically considered to be in the range of 2200-3000K, with cool white light being over 4000K. Although natural daylight can be around 6500K, it would appear as a blue/white light if used in an LED and this is what some people are most likely to object to.

4.4 With better technology, the efficiency and corresponding energy consumption of LED powered streetlights continues to improve. The gap in efficiency between high and low CCT lights also continues to decrease. Currently, the lights used by Dorset Council at 4000K are around 60% more energy efficient than the old sodium lights. A 2700K unit is around 52% more energy efficient that the old sodium lights.

5. **Development of a new street lighting policy**

5.1 Historic highway policies with a focus on reducing upward light pollution and replacement of nearly all our streetlights with full or semi cut off lanterns has resulted in healthy dark skies over Dorset but, more recently, some communities and individuals have raised concerns about some LED lights which were introduced to help reduce carbon emissions. These concerns related to the impact of LED lights on people's health, local wildlife, and the need to reduce light pollution to make it easier to enjoy the night sky.

5.2 The concern expressed about the potential health impacts of artificial light, have been related to the growing use of modern LED lighting that is richer in blue wavelengths compared with older lighting. Newer LED lighting has benefits including being more energy efficient. However, concerns have been raised by some residents about the current lighting policy, under which older street lighting has been replaced with newer LED street lighting in recent years. Lower CCT lighting is seen as being better from health risk, wildlife and ecological perspectives than higher CCT lighting.

5.3 The health effects of artificial light at night could influence human health by disturbing sleep and circadian rhythms. Many properties of light exposure influence circadian rhythms, including: "the duration, intensity and the wavelength composition, the timing of the light exposure and the history of the light exposure". The risk of health impacts due to light pollution is the subject of ongoing research. Further details of the possible health implications are detailed in the advice from the UKHSA shown in the Place & Resources Committee Report and APSE report in the background papers.

5.4 A policy review has been undertaken because of those concerns and the advancement of LED technology. A dark sky consultant was employed to give an external perspective to this process. The proposed policy takes a precautionary approach to these concerns by introducing a specification that

means new lanterns will emit less blue wavelength light. If approved, Dorset Council will be the first authority in the country to limit colour temperatures for health, ecological and dark sky benefits.

5.5 Various options have been investigated and were discussed at Place & Resource Overview Committee on 13 March 2025. The key considerations and recommendations have been used to help shape the new policy. Overview committee supported consulting on a new policy and replacing sodium lights with 2700K lights to save energy costs and carbon emissions. Overview committee wanted to enable town and parish councils to fund additional costs if there was a local preference for alternative lighting equipment and for the new policy to make the environmental zoning clearer.

5.6 Typically, standard columns and brackets are used for streetlights. In some cases, there is local interest in using alternative equipment such as Victorian style columns or bespoke lanterns. Such alternatives are available, although they are likely to have an additional cost. If local town and parish councils want suitable alternative equipment and can fund the additional costs, the new policy more clearly identifies how to make such changes.

5.7 Public consultation took place in March and April 2025 to determine residents' views on potential policy changes. The consultation results have been used to inform the new policy and are summarised below:

I. Preference for warmer lighting source (typically within the 2200k-3000k range)

II. Concern about impact of LED on wildlife

III. Mixed opinion over the impact of LED on human health

IV. Concern about impact of LED on sky quality and light spill

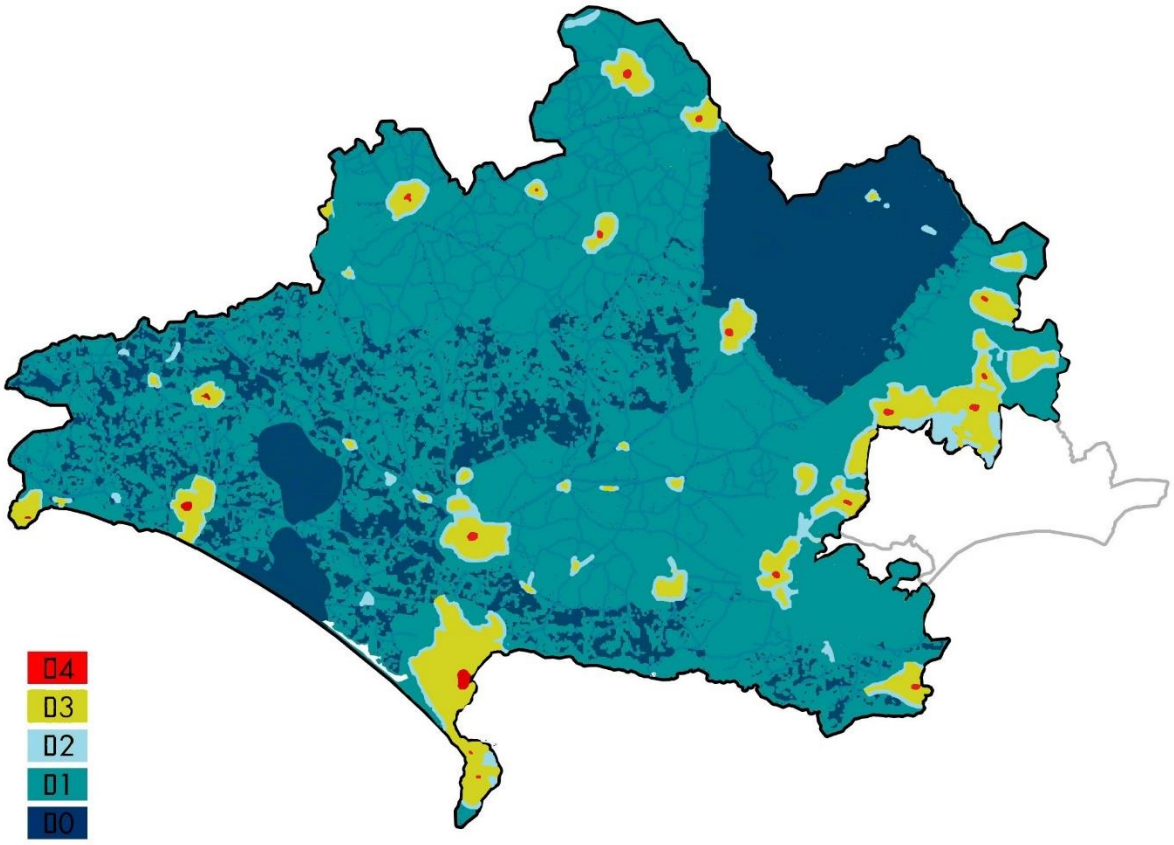
V. Agreement that residents should cover their windows at night

VI. Mixed opinion over impact of reduced lighting on crime and personal safety

VII. Mixed opinion over the part night switch off timing

VIII. Agreement that lights could be dimmed where safe to do so

5.8 Environmental zones are used to determine the level of new street lighting required in each part of Dorset and these zones have been reviewed as part of the new policy. An approximate illustration of the new zones is shown here:



Map Key

Zone D0 - Dark Sky Areas or Reserves (Protected environmental areas & dark skies) no or limited illumination

Zone D1 - Areas that currently have very low population densities (under 100 persons per sq km) and no, or intermittent lighting

Zone D2 - Areas that have sparse population densities (less than 150 persons per sq km) and some roads already lit

Zone D3 - Medium / high population densities (over 150 persons per sq km) with most roads already lit

Zone D4 - Town centre high night-time activity

Sherborne – an example using the old policy's environmental zoning map where the Light blue was zone 2, the Yellow was zone 3, the Red was zone 4

Sherborne – an example of the new policy's environmental zoning which uses the lower population density to reduce the rural area zone to D1 from D2.

5.9 Changes introduced to the policy include:

- Clarity on environmental zone, population density and highway lighting

Clear and detailed criteria guide the selection of lighting zones, starting with national guidance and enhanced by local factors like population density and Dorset's unique highway characteristics. As shown in the maps above, each area's lighting approach is thoughtfully tailored. In collaboration with a dark sky specialist, the council has also introduced improved controls on colour temperature and upward light, supporting both environmental goals and community well-being.

- Emphasis on residents' expectations to cover windows at night

  Public consultation, to determine residents' views on potential policy changes, agreed it is usual to expect residents in urban and suburban areas to cover their windows at night to reduce artificial light from the lit highway.

- Dimming lights included in the part night switch off by 50% at 10pm GMT

  Both public consultation and a dark sky specialist supported dimming of lights where safety and risk allow, which will reduce light pollution as a direct result. Dimming lights already deemed safe to switch off at midnight by half is a significant reduction in light pollution which also brings carbon reduction benefits.

- Upgrades to equipment appearance to be funded in partnership by local councils

  The council is committed to working closely with local communities, giving town and parish councils the opportunity to fund alternative lighting options that reflect local heritage and identity. This partnership approach ensures that community preferences can be embraced within the service.

- Making clear the service complaint process and legal basis

  In 2006, the PFI contract outsourced the street lighting service, including handling complaints. The legal setup and the provider's complaint process - similar to the council's - are now clearly explained.

6. Replacement of obsolete lamps

6.1 In addition to a new policy, the service provider is considering replacing 18,500 obsolete lanterns over the next two or three years, at their cost and within their existing contract terms. This offer is conditional that the service provider retains 75% of the energy savings until the PFI contract ends in 2032. This capital investment is an estimated £6.5M outlay that would otherwise fall to the council shortly after the PFI contract ends. Using current energy costs, officers calculate that this investment would save approximately £400K per year. Around £300K each year would be returned to the PFI service provider by increasing the existing contract payments each month, leading to a £100K per year net saving for the council.

6.2 Officers recommend that Cabinet support this investment and share of the energy savings, which will bring several benefits to the council and at no cost to the taxpayer. The carbon saving will be immediate and significant, followed by retaining 100% of the energy savings after the PFI ends. The ecology benefits will be a reduction in light pollution, also the new lamps will have a colour temperature of 2700K which is warmer than our current policy states.

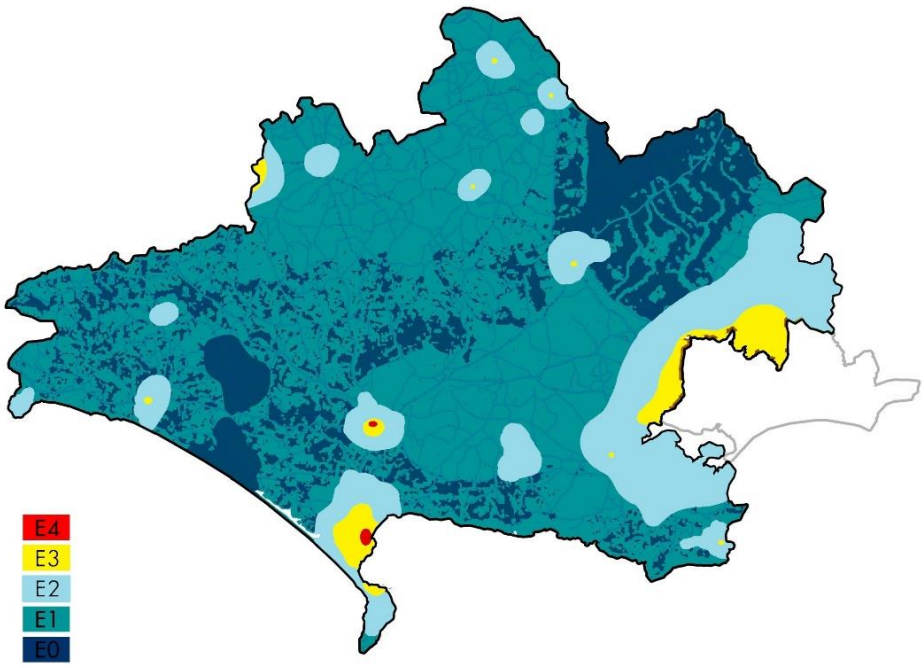
7. Alternative options considered

7.1 The new policy includes recommendations made by a dark sky specialist and will improve Dorset's already very good night sky quality. However, one option considered but not taken forward was to identify environmental zones purely by using Sky Quality Meter values, rather than the rural or urban nature of the location. This alternative approach was considered but deemed impractical and undesirable for use on the public highway. The table below from national guidance on reducing obtrusive light, gives clear descriptions for each zone, but only brightness levels for the most rural:

Table 2: Environmental zones

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

7.2 Taking this approach would result in most towns and urban areas in Dorset being classed and lit as if sparsely inhabited when they are clearly not, as illustrated in a draft map by the consultant:



7.3 Setting the environmental zone by its existing sky brightness alone and not considering population or urban nature would see the street lighting intensity used in the residential areas of our towns reduce more than the public consultation results suggests would be acceptable. The result would be dark areas between streetlights (unless additional streetlights were installed), increasing the risk to highway users and a disproportionate impact on some groups in society e.g. the perception of women's safety at night.

7.4 Independent consideration by the Local Government Ombudsman has previously concluded that the council was justified in including multiple factors in its lighting zone selection and not just basing it on the existing sky brightness alone. The proposed policy therefore uses the national guidance on each zone as it's starting point, adding categories of population density for further clarity, and then describing each unique highway situation in Dorset and how they will be lit.

8. Legal considerations

8.1 Dorset Council has a legal power to light the highway and a duty to do so in some circumstances, with a duty of care to users of the highway.

9. Financial implications

9.1 The financial implications are dependent on the number of new lights that are installed or replaced and the efficiency of those replacements in the coming years.

9.2 The capital investment to replace 18,500 obsolete lanterns is an estimated £6.5M outlay by the service provider that would otherwise fall to the council shortly after the PFI contract ends. Using current energy costs, officers calculate that this investment would save an approximate £400K per year. Around £300K each year would be returned to the PFI by increasing the existing contract payments each month, leading to an estimated £100K per year saving for the council.

9.3 Changes to the part night lighting operation to dim lights between 10pm and midnight GMT will generate further savings. Although the technology to implement this is not present in existing lights, the 18,500 replacement lanterns could include for it, potentially saving a further £36.5K each year.

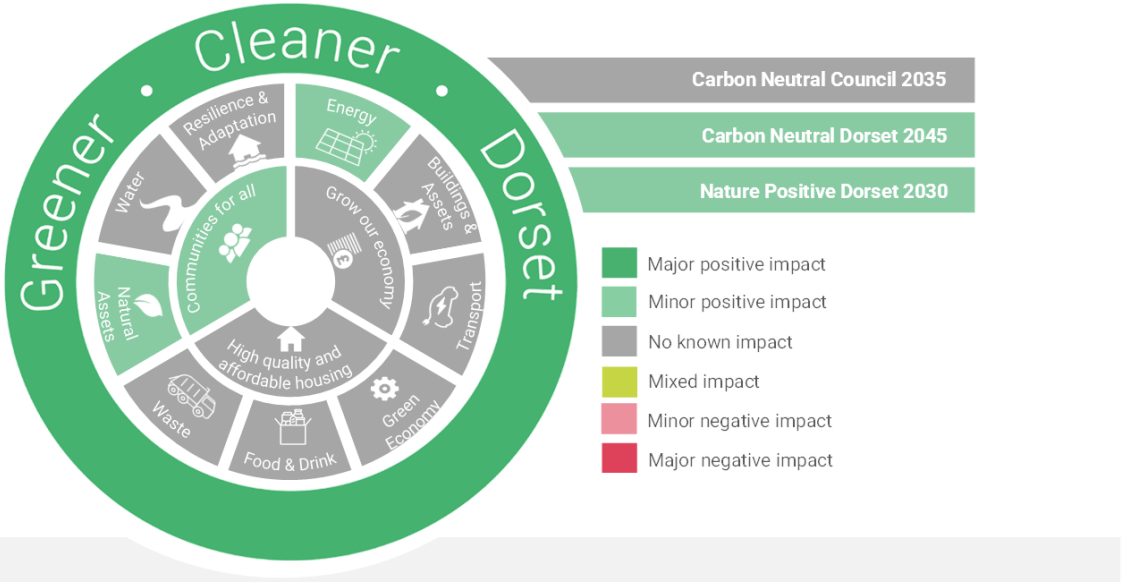
10. Natural environment, climate & ecology implications

10.1 Sky quality - Upward light spill and/or high colour temperature streetlights have a negative effect on the quality of the nighttime sky. DarkSky International certify luminaires with a maximum CCT of 3000K and an uplight allowance limited to 0.5% of total output. Turning off lights entirely is the best

way to improve night-time sky quality, but there is a general concept that lower CCTs have a less detrimental impact.

10.2 Ecological impact - Artificial night lighting can affect wildlife, and cooler light and excessive intensity can have a damaging effect on several species.

10.3



Quantitative Impact on CEE targets (if known)		
	Unit	Number of units (+/-)
2030 - Natural asset extent & condition	Ha	Unknown
2040 - Operational Emissions	CO_2 (tonnes)	Unknown
2050 - County Emissions	CO_2 (tonnes)	Unknown

10.3 The Climate Wheel - The new policy will introduce streetlights with lower correlated colour temperature (CCT) LEDs. While these LEDs consume slightly more energy than those used in the current replacement programme, they remain significantly more efficient than the older, high-energy streetlights. The proposed replacement of 18,500 outdated lanterns - each with higher energy consumption - ensures that the overall direction continues to deliver carbon savings.

11. Well-being and health implications

11.1 The health effects of artificial light at night are discussed in section 5 above and in the background papers.

12. Other implications

12.1 None identified.

13. Risk implications

13.1 HAVING CONSIDERED: the risks associated with this decision; the level of risk has been identified as:

Current Risk: Low Residual Risk: Low

14. Equalities

14.1 Advice received from other highways authorities, and our dark sky consultant is that dimming lights up to 50% is generally not noticed by the public. The intended changes aim to minimise adverse impacts by ensuring that critical areas remain lit. While certain groups may feel some impacts and fear of crime may increase, steps have been taken to mitigate these by maintaining lighting in key areas and monitoring any new issues that might develop.

15. Appendices

15.1 Appendix 1 - This is the draft text for the new policy; a new document will be produced if approved.

16. Background papers

16.1 Place & Resources Overview Committee Report Street Lighting Review.pdf and APSE report Appendix 8.1 APSE Energy Report.pdf

17. Report sign-off

17.1 This report has been through the internal report clearance process and has been signed off by the Director for Legal and Democratic (Monitoring Officer), the Executive Director for Corporate Development (Section 151 Officer) and the appropriate Cabinet Member(s).