

THIS ITEM IS FOR INFORMATION ONLY

(Please note that "Information Only" reports do not require Integrated Impact Assessments, Legal or Finance Comments as no decision is being taken)

Title of meeting:	Cabinet (pre-agenda)
Subject:	LED Street lighting - Adaptive lighting review
Date of meeting:	7 th March 2022
Report by:	Caroline Hopper (on behalf of Tristan Samuels, Director of Regeneration)
Wards affected:	All

1. Requested by Councillor Stagg

2. Purpose - To provide an update on the review of Adaptive Lighting profile

3. Information Requested

Portsmouth City Council (PCC) has completed upgrading street lighting on the road network to LED. As part of this upgrade a Central Management System (CMS) has been installed. This technology provides greater control over the lighting at specific locations and allows the introduction of an adaptive street lighting strategy; enabling different energy levels to be applied at different times of night.

In 2020 (4th February), the Cabinet approved the implementation of an adaptive lighting profile that provided additional significant annual energy and CO₂e savings:

- 295 Tonnes of CO₂e¹, and
- £82,953 of energy²

Equivalent to:

- 59 Hot air balloons filled with CO₂e³, or
- 741,393 miles driven in an average car⁴, or
- £326,059 of coal burnt, or
- Carbon sequestered by 4,878 tree seedlings grown for 10 years

¹ Government conversion factors for company reporting of greenhouse gas emissions

² Annual saving will fluctuate in line with energy costs. This figure is the actual saving observed between 2019/20 and 2020/21 following implementation of adaptive lighting.

³ 295,000kg/CO₂ / 1.977 (conversion factor for CO₂ weight to volume) = 149,216 m³CO₂. Average hot air balloon size in m³ = 2,500 m³CO₂.

⁴ Greenhouse Gas Equivalencies Calculator: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

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The profile also improves the quality of experience for residents by reducing light pollution.

A review of the adaptive lighting profile was carried out in 2021. This looked to confirm that the planned benefits had been realised and also if any additional benefits had arisen.

Stakeholders including Transport, Police, Community Safety, Blind and Partially sighted residents, Portsmouth University, and organisations working in and around the Night-time Economy (NTE) supported the review.

The review considered various factors including traffic flow, accidents and community safety. Based on this data, the suitability of individual lighting points for adaptive street lighting was rated. Alternative scenarios for adaption of the lighting were also considered.

In November 2021 an on-street demonstration was held to explore the effect of reducing the lighting further between 1am - 4am. This reduction would be in addition to the existing 10pm - 6 am settings.

Although the views of the attendees were mixed, most agreed that reducing the lighting level further impacted the ability to recognise faces and the road generally felt less safe.

It was subsequently found that the quality of the body-cam images was also adversely affected when the lighting levels were reduced further. Therefore, particularly given the focus on Violence Against Women and Girls (VAWG), it was agreed that it would not be suitable to further reduce the level of lighting anywhere on the network in Portsmouth at this time. It was also agreed that the current adaptive settings between 10pm and 6am were adequate.

Consideration was also given to how lighting can support active travel; particularly for people walking and cycling home late at night. The result was the creation of a lighting map of popular routes in and around the city centre and between the transport hubs. This map identified 705 lights on the network that should be maintained at full lighting level from dusk to dawn; increasing visibility and feelings of safety along key routes.

Key findings:

1. Conversion of standard and heritage and bespoke lighting to LED has as expected saved considerable amounts of energy and CO₂e. This in turn has led to significant energy savings for the Council and will continue to do so into the future.
2. It would not appropriate to reduce the level of lighting below the current levels at this time.
3. There is benefit in including key walking and cycling routes within the profile as this will support active travel. The introduction of these routes will be 'cost neutral' as

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mitigated by minor adjustments to thresholds of other lighting units and the recent conversion of Heritage and Bespoke lighting to LED.

Conclusion:

The LED lighting and central control system have been successfully operating for the past two years and have had time to bed in over this period. The current profile of adapted lighting between 10pm and 6am is working and should be maintained with the addition of key walking and cycling routes.

In line with other Council policies, the Adaptive lighting policy will now move to a 3-year review cycle, unless there are any sudden trends or data changes or circumstances within the lighting industry, that makes it necessary to review sooner.

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Signed by (Assistant Director)

Appendices:

Background list of documents: Section 100D of the Local Government Act 1972

The following documents disclose facts or matters, which have been relied upon to a material extent by the author in preparing this report:

Title of document	Location
Portsmouth Adaptive Street Lighting – Proposal for Citywide implementation - 4 th February 2020	https://democracy.portsmouth.gov.uk/documents/s25690/LED%20Adaptive%20Lighting%20Roll%20Out%20report.pdf
Review of Adaptive Street Lighting Policy 2021 - 21 st January 2022	Regeneration regenerationinfrastructure@portsmouthcc.gov.uk