

<b>Title of meeting</b>	Cabinet
<b>Date of meeting</b>	Tuesday 4 <sup>th</sup> February 2020
<b>Subject</b>	Portsmouth Adaptive Street Lighting – Proposal for Citywide Implementation.
<b>Report by</b>	Martin Lavers; Assistant Director; Infrastructure
<b>Written by</b>	Caroline Hopper; Business Assurance; Infrastructure
<b>Wards affected</b>	All
<b>Key decision</b>	Yes
<b>Full Council decision</b>	No

---

## **1. Purpose of report**

1.1 To provide an update on work to trial an adaptive street lighting strategy and seek approval to commence citywide implementation.

## **2. Recommendations**

2.1 It is proposed that Cabinet:

A) Approve a citywide implementation of adaptive street lighting.

## **3. Background**

**3.1 Context:** 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 due to changes in traffic flow. A trial of this strategy in 2019 demonstrated that it provides energy and CO2 savings and improves the quality of experience for residents by reducing light pollution.

**3.2 Methodology:** Portsmouth has employed Hyperion Infrastructure Consultancy to carry out a systematic approach based on national best practice as set out in the Institute of Lighting Professionals' Professional Lighting Guide PLG08 "Guidance on the Application of Adaptive Lighting within the Public Realm". This has included stakeholder consultation, an analysis of network suitability, and six week adaptive lighting trial.

**3.3 Adaptive lighting Trial:** On site demonstration and discussion with key stakeholders concluded that it would be appropriate to reduce the lighting energy levels by up to 50% between the hours of 2200hrs and 0600hrs at locations deemed suitable following a network analysis. It should be noted that reducing energy levels by 50% has a minimal effect on the visible lighting level. For caution network analysis considered a number of factors including traffic flow, accidents and community safety. Based on this data, the suitability of individual lighting points for adaptive street lighting was rated.

3.4 With member consent, a six week trial was undertaken within five areas of the City (Baffin's, Cosham, St Jude, Milton and Fratton); one of these areas was designated as a placebo to support analysis. A communication plan which involved a press release and letter drop to residents invited public feedback.

**3.5 Analysis of adaptive lighting trial:** Key stakeholders were informed about the trial and emergency protocol for changing the energy levels. During the trial the emergency protocol was not used and no concerns were raised. All 12,000 residents in the trial area were informed of the trial by letter and invited to feedback their experience of the trial via a short survey which could be completed online or via post. A press release was also issued to inform residents more widely. 94 responses to the survey were received, of these 83 were from residents within the trial area, equating to 0.7% of residents within the trial area.

Key findings from survey:

- Although most respondents stated that they noticed a difference in the lighting levels during the trial, an even higher percentage noticed a difference in the 'placebo' area where lighting levels were not adjusted than in the trial area; which would imply that it is not possible to reliably discern a difference.
- Of those that responded, the majority thought that lighting levels were about right, although this didn't vary significantly between the trial area and the placebo area and outside of the trial area.
- The trial area had higher levels of satisfaction with 80% of respondents being either satisfied or very satisfied with the lighting levels. This figure rises to 90% when neutral responses are considered.

The most common positive comments:

- The LED lighting being brighter and better quality than the previous HID lighting;
- Benefits from LEDs in terms of energy savings and reduction in light pollution;
- A number commented on the reduced lighting levels in the trial areas being an improvement on the unreduced LED lighting, which had been too bright.

The most common negative comments\*:

- Lighting levels being too bright or too dark;
- Concerns about safety of LED; and,
- Concerns about reduced lighting levels inviting crime.

*\* Only 7 negative comments were received in total. Two of these were from the placebo area.*

Current research indicates that there are no proven adverse health or safety issues associated with the use of LED street lighting. Equally there is no evidence that reducing energy to street lighting, resulting in minimal visual difference invites crime and our local crime data for the period of the trial supports this. These concerns will be addressed through the press release that accompanies the city-wide rollout.

Following the roll out lighting levels at locations where the lighting is reportedly too bright (or too dark) can be adjusted at the level of an individual street light if necessary.

#### **4. Reasons for recommendations**

**4.1 Forecast energy savings from city -wide roll out:** Work undertaken by Hyperion to measure the impact of adaptive lighting on energy consumption during the trial estimated that the city-wide implementation of adaptive street lighting would lead to further savings in energy consumption. The original calculated estimate of additional energy saved is 8-10%. The trial findings indicate a potential for energy savings as high as 14%, however we will not be able to confirm this potential until after the city wide adaptive lighting roll out has been implemented and its impact measured for a period of time. For consistency, key communication messages will stick with the 8-10% estimate until anything higher is confirmed.

**4.2 Forecast reductions in CO2 emissions:** Based upon energy saving calculations Hyperion have estimated that rolling out the dimming levels for the trial for the whole stock of street lights in the City will reduce annual energy consumption by 496,116 kWh which will translate into a reduction in CO2 emissions of 140,436kg. This is the equivalent of:

- 28 Hot air balloons filled with CO2, or
- 350,000 miles driven in an average car, or
- £155,000 of coal burnt.

#### **5. Integrated impact assessment**

5.1 A preliminary Integrated Impact Assessment has been completed and reviewed by PCC Climate Change Strategy advisor.

## 6. Legal implications

6.1 There is no legal obligation nor duty (including a common law duty) on PCC to provide street lighting, however, once provided, PCC have a duty to maintain the street lighting in a safe condition and in accordance with the current legislation and relevant standards (for example, British Standard: BS.5489 and European Standard BS EN 13201). Section 97(1) of the Highways Act 1980 gives PCC the power rather than a duty to provide street lighting:

*'A highway authority **may** provide lighting for the purposes of any highway...'*

6.3 In the case of *Heath McCabe v (1) Cheshire West & Chester Council (2) BAM Nuttall Limited* it was held that the local authority owed no such duty to provide street lighting and the Highways Act 1980 merely provided the power to the local authority to provide street lighting. However, as recent cases indicate, before a decision to switch off or, as in this case, to dim the lights is taken, PCC need to take reasonable care to ensure that those relying upon the street lighting are aware of any changes. It is also advisable that risk assessments are undertaken for each particular area before the decision is made.

6.4 PCC need to ensure that any dimming of the street lighting is in accordance with the relevant PCC street lighting policy and any changes to such policy should be published appropriately.

6.5 The dimming of the street lighting may affect the existing Highways PFI contract with Ensign and Legal Services should be consulted to ensure that the dimming is implemented in accordance with relevant provisions in that PFI contract.

6.6 Section 17 of the Crime and Disorder Act 1998 places a duty on PCC to give due regard to crime and disorder implications when discharging its functions. It states:

*'Without prejudice to any other obligation imposed on it, it shall be the duty of each authority to which this section applies to exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent, crime and disorder in its area.'*

## 7. Director of Finance's comments

7.1 Following the roll out of the LED lighting project to the majority of the City Council's Street lights, the amount of energy the Council consumes is around 40% lower than it was prior to the project starting. The council however bear the risk for the price of energy.

7.2 What this means is that the cost of energy is increasing and any reductions we make to the amount of energy the Council consumes are cost avoidance measures as opposed to savings. A further reduction of 10% consumption would allow the Council to avoid around £70,000 of costs.

7.3 The Council did provide £350,000 of savings against its energy budget and the Traffic and Transport Portfolio saw a reduction of this amount in its cash limited budget when the

Capital Scheme was approved to Replace Street lighting luminaires and to introduce a Central Management System (CMS).

7.4 There is no cost to the Council for implementing this new policy as the cost was met from this previous Capital Project.

.....  
Signed by: Martin Lavers; Assistant Director; Infrastructure

**Appendices:**

Appendix 1: Portsmouth Adaptive Street Lighting Roll out, additional energy saving comparisons.

**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
Hyperion Consultancy Ltd (2019) LED/CMS Adaptive Street Lighting Trial Final Report November 2019	Saved on PCC W/Drive - Street Lighting Replacement Strategy File.

The recommendation(s) set out above were approved/ approved as amended/ deferred/  
rejected by ..... on .....

.....  
Signed by: **Cllr Vernon-Jackson, The Leader**