

<b>Reference</b>	
<b>Executive Director</b>	Donna Ball
<b>Cabinet Member</b>	Cllr Alan Quinn

## Section A

<b>Service Area</b>	Streetscene – Street Lighting
<b>Budget Option Description</b>	Continuation of LED street Lighting implementation

## Budget Reduction Proposal – Detail and Objectives

### Introduction

Many local authorities across the UK have already opted to reduce energy consumption and costs through remodelling and modernising street lighting. The table below is taken from an APSE Street Lighting Survey and shows the different approaches taken by local authorities with regards to energy saving methods:

	<b>Zero</b>	<b>0-10%</b>	<b>10-20%</b>	<b>20-30%</b>	<b>30-40%</b>	<b>&gt;40%</b>
Lamp switch off (eg. 2am-5am)	65.22%	26.09%	0.00%	0.00%	0.00%	8.70%
LED lighting	0.00%	0.00%	0.00%	10.0%	0.00%	90.00%
Lamp dimming	17.24%	0.00%	3.45%	6.90%	3.45%	68.97%
Reduced lighting hours	56.52%	8.70%	0.00%	0.00%	0.00%	34.78%

The table shows that replacement of Street Lighting with LEDs has been done by over **90%** of authorities and nearly **70%** are operating some form of lamp dimming.

With rising energy costs, it is essential that savings options from street lighting are further considered Bury.

### Overview of Street Lighting Energy Usage

Street lighting uses **27%** of the Council's total electricity, and accounts for **9%** of the Council's carbon emissions.

The Street Lighting energy invoice for 2021/2022 was approximately **£800k** and the estimate for 2022/2023 is **£1.7m**, an increase of **112.5%**.

### Work To Date

**Phase 1** – LED Lantern swap on side roads – This work resulted in just over **11,000** lanterns being swapped to LEDs. Despite this being around 54% of the total lighting stock, these lanterns only make up just under 15% of the total energy consumption and are not of a type which can be dimmed without further upgrades.

**Phase 2** - Swapping columns of 8 metre and above which are approaching/have passed their design life, and the replacement of columns identified as requiring replacing as part of our structural test programme – This work is well under way, with some **855** having already been replaced with LED Lanterns. This phase is still in progress, and it is anticipated that over **3,000** columns will be swapped by the end of March 2024.

### **A Way Forward**

Many local authorities across the UK have already opted to reduce energy consumption and costs through LED lanterns and dimming of street lighting.

As mentioned above, the LED lanterns replaced in Phase 1 only make up around 15% of the overall energy usage, so it is felt that the capital costs to swap out the control gear for one suitable of being trimmed/dimmed is just not cost effective.

However, just over **57%** of the total energy consumption is made up of the higher wattage old low pressure/high pressure sodium lanterns, where replacement would provide a cost-effective solution to reducing the overall energy costs. These are generally on 8 metre and above columns.

Work is already ongoing to replace some of these as part of the current column replacement programme (Phase 2) as mentioned above in “Work To Date”.

Taking the number of lanterns which will be swapped as a result of phase 2 into consideration, there are around **3,346** lanterns remaining which could still be replaced. They can be broken down as follows:

<b>Lamp Type</b>	<b>Quantity</b>
90W	969
100W	265
135W	940
150W	1,093
250W	79
	<b>3,346</b>

### **Proposal**

To replace the lanterns containing the above-mentioned lamp types with LED lanterns. As a result, they will then be capable of being dimmed by the Council's

current system, which is Philips CityTouch. This will ensure that the Council has control of all the LED lighting of this type from a single system.

The current estimated cost of replacing the above lighting, based upon lanterns costs and the current GMCA Framework rates, is **£1,330,000**.

The estimated time to complete this work is approximately **360** working days, approximately **1.75** years based on 1 crew carrying out the work. The timescales could be reduced by employing more teams to carry out the work or contracting out the replacement work. However, it should be noted that recruitment to these roles is currently difficult and interest in bidding for this work is low due to high demand for these services. If approved the service can commence the process as soon as possible to contract out / recruit for this work, in the hope that the timescales can be reduced so the savings can be realised.

### **Replacement with LED lighting**

The replacement of the columns with LED lanterns as described above will realise an estimated energy saving of **£219,987** per year (pay back of **6.6 years**).

### **Dimming of the LED lighting**

The concept of dimming street lighting was first approved by Cabinet in November 2012. The **855** lamps that have already been completed as part of phase 2 are already being dimmed by 50% between 00:00hrs and 06:00hrs with the same approach proposed for all future upgrades to LED lighting.

It should be noted that, whilst detectable with a light meter, a 50% reduction in the lighting level should not be visibly noticeable.

Once the above replacements have taken place the Council will have control of all the LED lighting of this type on the classified network from a single system and will have the capability of dimming the lighting. Dimming the lighting by 50% between 00:00hrs and 06:00hrs will provide a further saving of **£102,804** and reduce the payback period to around **4.5 years**.

The Council has not received any contact / complaints in relation the existing trials that have been conducted around the borough to dim the street lighting. The dimming of streetlights has also been adopted by a significant number of local authorities and is working effectively.

It is important to note that the Asset Management System is updated regularly and is constantly changing as result of this. As such, the figures used in this report were correct as of the 11<sup>th</sup> of August 2022.

This proposal will support our "Let's Do It" strategy principal of achieving carbon neutrality by 2038.

### **Considerations**

Some streets contain mixed column heights and, as such, may contain lantern types not covered by the proposal. To ensure this proposal will not leave a patchwork of different lamp types in a street it is recommended that all the lanterns in the street will be swapped in addition to those identified for replacement. Currently, it is estimated that swapping all lanterns in a street will add an additional 461 lanterns, at an additional cost of **£130,000** and taken a further 60 working days to complete.

### Summary of Total Costs

- Total **Capital investment** required = **£1.46million**
- Revenue saving per year (Based on 2022/23 energy prices) for **LED replacement** = of **£219,987** (pay back of 6.6 years).
- Revenue saving per year (based on 2022/23 energy prices) for **LED replacement and dimming on the classified network, between 00:00hrs and 06:00hrs by 50%** = **£322,791** (pay back of 4.5 years).

### Timescales

- Approximately **2** years based on 1 crew carrying out the work.
- May be possible to reduce through employment of additional crews / contracting out the work.

	2023/24	2024/25	2025/26
Budget Reduction (£m)	£0.300		
Staffing Reduction (FTE)	None		

### Section B

***What impact does the proposal have on:***

<b>Property</b>
None.
<b>Service Delivery</b>
Reduced energy budget. Decrease in the amount of energy consumed. Decrease in the amount of Carbon produced.
<b>Organisation (Including Other Directorates/Services)</b>
None.
<b>Workforce – Number of posts likely to be affected.</b>
If work programme accelerated additional staff / contractors will be required to deliver the work.
<b>Communities and Service Users</b>

Previous trials have found that the public do not tend to notice the reduced lighting levels due to dimming, but there is potential for negative feedback.

Consideration to the impact on the Safer Streets Strategy from Central Government.

**Other Partner Organisations**

None.

**Section C**

**Key Risks and Mitigations**

Risks	Mitigations
<p>Time taken to complete the work and therefore delivery of the associated savings.</p>	<p>Existing GMCA Frameworks will be used for the work. Letting further contracts from The Chest to assist with the project. Taking on temporary staff (internal) to assist with the project.</p>
<p>Future energy price decrease reducing estimated savings and increasing the time in which savings will be paid back.</p>	<p>Without this investment the Council would have to find additional funding to cover energy costs increases. This proposal will mitigate against the increases.</p>
<p>There is an annual cost for the Philips City Touch system after the initial 10 year (given at time of lantern purchase) has expired.</p> <p>This is estimated at around £5 per lantern. The GMCA Street Lighting Group are looking at a contract for this to reduce these costs.</p>	<p>It may transpire that paying an annual fee for each lantern, takes up a significant amount of any savings achieved.</p> <p>The current settings of the lantern (including any dimming) will be maintained if the CityTouch subscription expires. However, remote alteration of lantern settings will no longer be available.</p>
<p>Delivery delays due to material shortages, etc., may extend estimated completion time.</p> <p>Price increases may result in less work being carried out and thereby reducing savings.</p>	<p>Purchasing all the required materials at the start of the project would alleviate this and also negate any future price increases.</p>
<p>Energy calculations are quite complex and actual savings might be lower than estimated.</p>	<p>A combination of previous examples, experience, and airing on the side of caution have been used to try and ensure that as accurate an estimate as possible has been achieved.</p>

	Savings will still be achieved, and it is possible they may be even more than estimated.
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### Key Delivery Milestones

*Include timescales for procurement, commissioning changes etc.*

Milestone	Timeline
Procure, appoint contractor, carry out works.	October 2022 to September 2024 (2 Years) or sooner if can accelerate.

### Section D

Consultation Required?	Further consultation not required as this is a continuation and extension of an existing approach. However, a full EIA will be conducted to take account of the extension in this proposal.
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	Start Date	End Date
Staff		
Trade Unions		
Public		
Service User		
Other		

### Equality Impact

*Is there potential for the proposed budget reduction to have a disproportionate/ adverse impact on any of the following?*

Disabled people	TBC
Particular Ethnic Groups	TBC
Men or Women (including impacts due to pregnancy/maternity)	TBC
People who are married or in a civil partnership	TBC
People of particular sexual orientation	TBC

People who are proposing to undergo, undergoing or undergone a process or part of a process of gender assignment	TBC
People on low incomes	TBC
People in particular age groups	TBC
Groups with particular faiths and beliefs	TBC

<b>EIA Required?</b>	<b>Yes</b>
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## Section E

### *Financial Implications and Investment Requirements*

<b>Investment requirements – Revenue and Capital</b>
<p><b>Installation Costs</b></p> <p>The current estimated capital cost of replacing the above lighting, based upon current GMCA Framework rates, is <b>£1,460,000</b>.</p> <p><b>Estimated Energy Savings</b></p> <ul style="list-style-type: none"> <li>• Revenue saving per year (Based on 2022/23 energy prices) <b>for LED replacement</b> = of <b>£219,987</b> (pay back of 6.6 years).</li> <li>• Revenue saving per year (based on 2022/23 energy prices) <b>for LED replacement and dimming on the classified network, between 00:00hrs and 06:00hrs by 50%</b> = <b>£322,791</b> (pay back of 4.5 years).</li> </ul>

<b>Finance Comments – Will the proposal deliver the savings and within the agreed timescales?</b>
<p>Full savings will only be realised on completion of the project.</p> <p>It should be noted, however, that energy costs may drop during the project resulting in reduced savings and a long payback period, or increase resulting in cost avoidance and a shorter payback period.</p>