

Delegated Decisions report



31 January 2023

STREET LIGHTING LED UPGRADE PROGRAMME

Name of Cabinet Member **Councillor Paul Trendall**
(Cabinet member for Customer Services)

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Exempt / confidential / not for publication	No
Council Plan reference	Not in Council Plan
Wards affected	All wards

Executive Summary

In 2014 Milton Keynes started its delivery of a programme to modernise and upgrade its lighting stock to low energy LED to reduce energy costs and carbon, extend the life of its assets and reduce maintenance. We have to date converted 38,000 units, with a reduction of 8.089 million Kwh of electricity and 8,522 tonnes of carbon per annum, cumulative saving of 29.2 million Kwh and 38,268 tonnes of carbon.

In October 2022 we saw energy prices increase by 88% with further increases forecast over the medium term. This has resulted in a revenue pressure for 2023/24 of £1.635m. Our annual lighting energy consumption is currently 13.127 million Kwh and 3,037 tonnes of carbon. In order to move to a position where all of our lighting assets are fully modernised and operating in the most cost-efficient manner approval is sought to release capital funds to install, test and commission the final 20,000 Central Management System (CMS) controlled LED streetlights and carry out CMS modifications on all existing 38,000 LED street lighting lanterns. This will then provide a fully functioning, controllable street lighting asset capable of driving both further savings in response to increases in energy.

A significant feasibility study has been undertaken to design and develop our strategy to model future savings and implement this project, including the Central Management System (CMS) to remotely control lighting. The feasibility was funded from the Strategic Development Reserve.

If approval is given, full implementation is planned by April 2024 to coincide with the end of the existing term maintenance contract. Any delays in approval will likely lead to this timeline slipping.

1. Decision to be Made

- 1.1 That progress with the upgrade of streetlighting units (and associated Kwh and carbon savings), alongside the recent and significant energy cost inflation, be noted.
- 1.2 That a revised approach to the upgrade programme (Convert Lanterns to LED, install CMS on new Lanterns and Retrofit existing LED stock with CMS) as set out at paragraph 4.4, be agreed.
- 1.3 That the resource allocation and spend approval of £10m in the Capital Programme (£250,000 in 2022/23, £9.75 million 2023/24), to deliver the revised approach, be approved.

2. Why is the Decision Needed?

- 2.1 Energy costs have recently (October 2022) significantly risen by 88%, which when used to calculate the impact on the authorities spend on its street lights this equates to an increase of £1.635M per annum. Current forecasts are for a further increase of 15% in October 2023.
- 2.2 With the current global factors affecting the unit price of energy we are seeing unprecedented rises in costs this has already and will continue to create a revenue pressure for the authority, therefore we have looked at what further efficiencies can be achieved, revisiting previous decisions.
- 2.3 Milton Keynes has adopted LED technology in the modernisation of its lighting assets.
- 2.4 This decision to convert our outstanding conventional lighting units (up to 20,000) to low energy LED will maximise the primary revenue savings on energy (forecast 64% saving on energy).
- 2.5 The secondary element which relates to the 'remote controlling' function of streetlights (CMS) is the key to future proofing the system and being able to mitigate further energy cost increases, providing us with a number of benefits which include:
 - (a) dimming and trimming strategies for all street lights, further reducing energy costs (revenue savings of up to another 16% saving on current baseline);
 - (b) improved maintenance efficiencies (GPS tags to highlight faults);

- (c) extend the life of lanterns (future capital savings);
- (d) reduce the need for scouting (future revenue saving);
- (e) realise future SMART technologies (i.e. extra environmental sensors);
- (f) improved Service Levels in new contract being procured for April 2024 - more accurate responsive repairs leading to reductions in customer enquiries /complaints;
- (g) energy submissions more accurate and up to date (revenue savings realised sooner);
- (h) incorporate other electrical assets in a system wide approach, i.e traffic signals;
- (i) all CMS functionality is fully compatible with authorities new Asset Management System (AMX);
- (j) publish 'real time' maintenance data on websites for residents; and
- (k) additional carbon savings (estimated 15%) can be achieved.

3. Implications of the Decision

Financial	Y	Human rights, equalities, diversity	N
Legal	N	Policies or Council Plan	Y
Communication	N	Procurement	Y
Energy Efficiency	Y	Workforce	N

(a) Financial Implications

The financial benefits of this project are significant given our future revenue challenges. Whilst capital investment is required to undertake the project there are immediate benefits on a cost to save basis.

The installation of new LED low energy lighting will have a positive impact on maintenance revenue budgets by reducing the amount of forecast repairs and current callouts.

In addition if the Central Management System (CMS) is installed, it is anticipated that the amount of nighttime scouting that is currently carried out can be reduced, again reducing future revenue costs.

The CMS also allows modelled options for further reductions (up to 16%) over and above standard baseline LED conversion (circa 64% saving on current energy).

There is an annual revenue cost for the licence to operate the CMS system of circa £60,000 this will be offset by reduction in scouting costs alone.

In order to give credibility and surety to the figures an initial piece of work was carried out to validate and map inventories, undertake detailed site surveys, carry out proposed lighting designs and model lighting strategy options. In addition procurement exercises using MK data was undertaken to secure both best value prices and ‘inflation proof’ costs against a large project undertaken over 14 months on the lanterns, installation and the CMS system. A contingency of 5% has also been built in to the project to account for any unforeseen delivery issues.

Not all of the Street lighting energy budget relates to the LED project. The savings on KWH and energy costs relating to this project are shown in the table below.

Savings of £998k have been built into the 23/24 final budget proposals with further savings of £960k built in for 24/25 to give a total saving once works are completed of £1.958m These savings take into account the inflationary increases built into the Medium Term Financial Plan for the cost of energy and are based on the forecast prices.

Funding of the £10m investment which is due to be completed by the end of 23/24 is from £2m carbon offset funding within the Tariff Programme and £8m of one-off Council reserves.

	22/23		23/24		24/25	
	Forecast Consumption	Energy Budget	Forecast Consumption	Energy Budget	Forecast Consumption	Energy Cost
	KWH	£000	KWH	£000	KWH	£000
Total Street Lighting Energy	13,127,334	3,442	13,127,334	4,552	13,127,334	4,931
Baseline position relating to LED lighting	12,668,956	3,201	12,668,956	4,264	12,668,956	4,628
Option 4			9,802,934	3,266	7,309,516	2,670
Saving against baseline			(2,866,022)	(998)	(5,359,440)	(1,958)

(b) Legal Implications

The authority has under the Highways Act 1980 a duty of care under section 41 and section 97, that where street lighting has been installed extends to demonstrate that a system exists to maintain public lighting in a safe condition. Therefore as we have installed lighting we must demonstrate a planned maintenance system of inspection and repair.

The works will be commissioned and delivered under the existing Term Maintenance Contract.

(c) Other Implications

Communication of this programme is an important factor and although we have already undertaken conversion of circa 38,000 units already it is important that the communication for this final phase relays the benefits to residents. In addition, as further modelling options are developed the communication to residents of what these changes are will be critical to resident buy-in.

Commissioning of the project will be via the existing Highways Term Contract. Within this contract the provider will carry out three separate procurement exercises on:

- (i) Design.
- (ii) Central Management System (CMS).
- (iii) Supply and installation of new lanterns.

This will ensure that the full market is engaged and that we obtain best value. This also has the benefit of fixing prices in an unstable market subject to high inflationary increases.

Energy Efficiency is at the core of this project, the current street lighting LED conversion programme started in 2014 and has saved 8.089 million kilowatt hours over 8 years, this last phase of this programme will generate up to another 64% on the non LED units and up to an additional 16% with the addition of a Central Management System (CMS) - it is expected to save further energy on a sliding scale dependant on what further option models are then implemented after installation.

4. Alternatives

4.1 Option 1 - Do Nothing

Energy costs for the street lighting asset will rise unchecked (inflation already seen 88% increase this year from October 22) with the current inflationary pressures this is anticipated to rise significantly again, carbon reduction targets will not be achieved. In addition, revenue maintenance costs will increase on what is an ageing asset.

4.2 Option 2 - Convert Lanterns to LED

This will realise an initial saving on the energy cost (71%) and also achieve significant carbon savings and also maintain current revenue maintenance costs. It will only be a one off saving and not allow further energy and carbon savings to be met, which will mean in the event of future pressures on energy costs the authority has no further savings options.

4.3 Option 3 - Convert Lanterns to LED and install CMS System on new Lanterns

This will achieve the savings on energy and carbon as identified in Option 2, in addition it will provide savings options for future management of the street lighting asset meaning that further dimming of the streetlights can take place or even part night lighting in less vulnerable areas can take place maximising and driving further energy and carbon savings on the newly installed lanterns.

4.4 Option 4 - Convert Lanterns to LED, install CMS on new Lanterns and Retrofit existing LED stock with CMS

This will achieve the savings on energy and carbon as identified in Option 3, and in addition it will add the existing street lighting units converted to LED to a complete inventory and fully maximise current and future savings by modelling individual lighting plans for all zones in Milton Keynes, this could include 'Part Night Lighting'. This system will also give visibility of faulty lights that in the new contract will drive a more responsive repair service (up to 15% on all lights).

5. Timetable for Implementation

- 5.1 It is anticipated that the programme will be delivered between February 2023 and April 2024 (see attached **Annex** to the report).

List of Annexes

Annex Delivery Programme with Key Dates

List of Background Papers

None