Subject:	**OPPORTUNITIES FOR SUSTAINABLE STREET-LIGHTING WORKS**
Meeting and Date:	**Cabinet – 3 December 2018**
Report of:	**Roger Walton, Director of Environment and Corporate Assets**
Portfolio Holder:	**Councillor Trevor Bartlett, Portfolio Holder for Property Management and Environmental Health**
Decision Type:	**Key Decision**
Classification:	**Unrestricted**
Purpose of the report:	To seek cabinet approval to replace lighting columns and to convert all existing Dover District Council-owned lamps to LED.
Recommendation:	1. That Cabinet authorises the Director of Environment and Corporate Assets, in consultation with the Portfolio Holder for Property Management and Environmental Health, to tender, award and manage the contract for: the reinstatement of previously removed street-lights, the removal and replacement of street-lights identified as nearing end of life, and the conversion of the lamps to LED for all DDC-owned street lights. 2. That Cabinet authorises the Director of Finance, Housing and Community, in consultation with the Portfolio Holder for Corporate Resources and Performance, to determine the most appropriate means of funding for the LED conversion and structural replacement contract.

1. Summary

1.1. Currently the Council are responsible for 2,642 street lights across the district. The age of the Council's existing stock does vary, but the vast majority of lights are in the range 15-35 years old with inefficient high wattage (yellow) sodium lamps. These are predominantly installed in and around rural villages.

1.2. In April 2017 cabinet approved essential health and safety works to its existing lighting stock, following structural and electrical testing. A total of 175 street lights were removed for reasons of health and safety of which approximately one third were subsequently replaced. These actions resolved the immediate issues but it was recognised that the sustainability of the lighting stock for the long term, both in terms of maintenance and energy consumption, needed to be considered and a solution identified. This report considers options for a sustainable programme of replacing the existing stock.

1.3. The first element of the programme concerns the replacement of the lamp units themselves. The assessment of the savings in energy costs alone, based on present energy tariffs, is £100k per year if LED lamp units replace the current ones. This element of the programme has a capital cost of £500k which will be recouped in five years from reduced energy costs.

1.4. The second element of the programme concerns the most efficient way of ensuring that the structures, standards or pole mounts, which support any new lamp units remain safe and fit for purpose. A sum of £435k has been estimated as the capital investment necessary to reinstate lighting columns which were removed in 2017 on safety grounds; to replace lighting columns that will reach end of life in the next 5 years; and to replace reinforced concrete columns which are unable to be converted to receive LED lamps.

2. Introduction and Background

2.1. The Council are responsible for more than 2500 street lights, considerably more than neighbouring authorities own. The lamps are mounted in various ways ranging from concrete standards and metal standards to pole mounts. The lamps themselves are mainly high/low pressure sodium lamps, which give off a hazy yellow glow.

2.2. The age of the Councils existing stock does vary, but the vast majority of the street lights are in the range of 15-35 years old. As part of its maintenance obligations the Council procures structural and electrical testing on a quinquennial basis. The latest quinquennial inspection, undertaken in 2016 revealed a considerable number of lights that had come to the end of life, either due to shortcomings associated with the electrical circuitry or the structural integrity of the light column or bracket support. A total of 175 street lights were removed for reasons of safety. The Council recognised the impact the loss of these street lights would cause and set aside a budget of £60k to replace those lights with the greatest impact, based on an objective set of criteria; approximately 60 lights were replaced. The quinquennial report focussed minds on the sustainability of the lighting stock for the long term, both in terms of maintenance and energy consumption, and the need for a solution. A number of options were considered:

2.3. The option of removing individual street lights once they reach the end of life and not replacing them was discounted due to the consequences for the affected rural communities. The lights are often isolated, serving a particular purpose, such as where a footpath meets a street and removal can increase the risk of harm. Even where this risk does not increase in reality there is often a public perception that the removal of a light is a health and safety issue and is likely to lead to an increase in anti-social behaviour. The removal of the 175 street lights led to many members of the public contacting the Council seeking that the lights be reinstated. The rural setting also means that background light levels are lower than in urban areas thus increasing the impact of the loss of a particular street light.

2.4. The option of transferring the existing lighting stock to the Highways authority, Kent County Council, in the vast majority of cases was discounted because of the conditions imposed by KCC before they will accept new lighting stock. KCC has been undertaking a major replacement programme of its own lighting stock and one driver is the ability of new lighting units to diagnose and report faults remotely. KCC has recently retendered its lighting maintenance on this basis, and it has indicated that it is extremely unlikely to accept new stock that cannot be fitted with such technology.

2.5. The option of DDC maintaining the existing lighting stock is not sustainable. The lamp units themselves consume too much energy and are obsolete technology,

which means that parts will become both more expensive and more difficult to acquire. The age and maintenance history of many of the standards is such that the level of corrosion cannot now be overcome by maintenance alone. Due to their construction, concrete standards are virtually impossible to maintain once there is corrosion of the reinforcement. The lighting stock survey, together with the information provided in the 2016 quinquennial inspection will enable the Council to identify streetlights where it is appropriate to replace just the lamp.

2.6. The remaining viable option involves a programme of capital works. There are two elements to the programme: (1) conversion of the lighting stock to LED lamps and (2) the replacement, and maintenance of the structures that support the lamps. Please refer to Appendix B for project program.

Conversion of the Lighting Stock to LED

2.7. The last few years has seen LED lamps become dominant in the street lighting market. Although initially expensive, demand for LED's has rapidly increased and more manufacturers are now supplying such products. This has resulted in the cost reducing considerably; when KCC first started to look at replacing its lighting stock with LED lamps 2 to 3 years ago, the cost was around £350 per unit, current costs are now less than £250 for a similar design.

2.8. Equally it is becoming increasingly difficult and more expensive to purchase the lamps currently used in the district as they are obsolete, energy hungry technology, and are being phased out by manufacturers. This is mainly to fall in line with carbon reduction ambitions set out in the Government's Clean Growth Strategy and Climate Change Act'. Additionally, LED reliability has improved dramatically to the point where manufacturers are offering warranties in excess of ten years.

2.9. LED lighting also has the potential to control the lamp, for example dimming it by remotely using Bluetooth technology. The inclusion of remote control technology has been discounted for this project on the grounds that the additional expenditure will not yield revenue savings. The number of lights that DDC own is small and the rural nature of the majority of the stock means that communities will notice and report faults quickly anyway. The new lighting will however have the ability for this additional functionality to be added later.

2.10 The cost of the replacement heads is estimated to be just under £500,000, an average cost of circa £250 per lamp. The estimated total energy saving will be £100,000 per annum based on the current tariffs and the payback period will be less than 5 years. KCC carried out a similar analysis before embarking on a programme of LED conversion; actual savings so far have exceeded the savings predicted by analysis.

2.11 The capital expenditure can be funded either directly from DDC reserves, as a spend to save item or through Salix funding. Salix is a central Government initiative set up to provide interest free loans to projects that will deliver energy savings which pay back the loan within five years. In this case the loan would be paid back from the money generated by the lower energy costs resulting from the more efficient LEDs. DDC have applied for an interest free Salix loan, which has been provisionally approved. As part of the application process Salix have checked and approved the business case, the terms and conditions of the Salix loan are not onerous but the main eligibility requirement is that the loan is to be paid back within

5 years from energy savings. Although the Salix loan, if taken up, would fund the LED conversion, the replacements of the failed columns and brackets are not eligible and would need to be funded directly by DDC.

Replacement of Lighting Columns and Brackets

2.12 Analysis of the existing lighting stock from the stock survey and the structural and electrical testing indicates that, in addition to the 100 or so columns that still need replacing, following the removals in 2017, approximately another 100 lights will reach end of life and need replacement within the next 5 years. In addition DDC own nearly 200 concrete columns, which would need to be replaced with a steel column, in order to be compatible with LED lamps. In total approximately 400 lighting standards need to be replaced at a total estimated cost of £435k. There will be some minor maintenance revenue savings since new standards will require very little maintenance in the early years.

2.13 Appendix A shows, in tabulated form the distribution across district of the Councils street lighting stock broken down by ward. The wards with the highest number of street lights have been highlighted in yellow; the table also shows the number column replacements. Variation in failure rates can be explained by differences in age, type and exposure conditions. Typically street lighting in one area is of a similar age and type and can therefore be expected to all fail at more or less the same time.

3. Identification of Options

3.1. **Option 1** – Replacement of all lamp units with LED lamps , for street lights removed following the 2016 quinquennial inspection; replacement of street lights predicted as coming to end of life within the next 5 years; and replacement of street lights which cannot be adapted to accommodate LED lamps.

3.2. **Option 2** – Replacement, with exceptions, of the street lights removed following the 2016 quinquennial inspection, and replacement of street lights predicted as coming to end of life within the next 5 years.

3.3. **Option 3** – Not to replace the street lights removed following the 2016 quinquennial inspection and instead remove the lighting stumps and fully disconnect. Repeat the exercise for the 100 lights expected to reach end of life within the next 5 years.

4. Evaluation of Options

4.1. **Option 1** – Will address the need for replacing the lighting that's been recently removed over the last year or so. Members of the public and Council have been particularly concerned about the safety aspects of the missing lighting, and it is therefore assumed that there will be much support for their replacement. Removing and immediately replacing the lights expected to reach end of life within the next 5 years as a programme of planned maintenance will avoid the anxiety in the community that leads to multiple reports of individual failed lights and the associated officer time. Replacing street lights which cannot accommodate LED lamps will also reduce the number of lights susceptible to structural or electrical failure. Converting lights to LED lamps will pay for itself within 5 years from the saving derived from the Councils energy bill. **Officer recommendation to proceed with Option 1.**

4.2. **Option 2** – Will address the need for replacing the lighting that's been recently removed over the last year or so. Members of the public and Council have been particularly concerned about the safety aspects of the missing lighting, and so it is therefore assumed that there will be much support for their replacement. Removing and immediately replacing the lights expected to reach end of life within the next 5 years as a programme of planned maintenance will avoid the anxiety in the community that leads to multiple reports of individual failed lights and the associated officer time. **Officer recommendation not to proceed with Option 2.**

4.3. **Option 3** – The option of removing individual street lights once they reach the end of life and not replacing them is not recommended because of the consequences for the rural communities they serve. The lights are often isolated, serving a particular purpose, such as where a footpath meets a street and removal can increase the risk of harm. Even where this risk does not increase in reality there is often a public perception that the removal of a light will translate to an increased risk of harm through anti-social behaviour and crime. The rural setting also means that background light levels are lower than in urban areas thus increasing the impact of the loss of a particular street light. **Officer recommendation to not proceed with Option 3.**

5. Resource Implications

5.1. There is a £935k allocation in the current MTFP to fund street lighting column replacements along with fully converting all DDC lamps to LED. £500k is needed for the LED conversion and this will be funded either from DDC capital reserves or from an interest free Salix loan. The remaining sum of £435k will be used to replace the failed columns, the columns that reach end of life in the next 5 years, and other columns that will need to be replaced in order to accept the new LED lanterns. Please refer to Appendix B for project program.

5.2. By retaining the street lighting the Council will commit itself to replacement of the remaining existing lighting stock over the long term. At today's prices the commitment will be in the order of £110k per annum for the next 20 years.

6. Corporate Implications

6.1 Comment from the Section 151 Officer: The capital programme includes provision for £935k for replacement of lamps and columns. The capital programme also includes a further £1.5m to finance column replacement which will enable the Council to commit to maintaining the same level of street lighting. (MD)

6.2 Comment from the Solicitor to the Council: The Solicitor to the Council has been consulted in the preparation of this report and has no further comments to make.

6.3 Comment from the Equalities Officer: This report does not specifically highlight any equality implications however in discharging their duties members are reminded to comply with the public sector equality duty as set out in section 149 of the Equality Act 2010 http://www.legislation.gov.uk/ukpga/2010/15

6.4 Comment from Climate Change Officer: Conversion of street lighting to LED will not only support Government carbon emission targets but also help Dover District Council minimise the Council's own impact on the environment through a reduction in energy used and carbon emissions as detailed in the Corporate Plan and feed into actions set out in the Kent Environment Strategy.

7. Appendices

Appendix A – Lighting stock by ward and number of failures for replacement, (*note the areas most populated with DDC lights have been highlighted in yellow).

Appendix B – Project programme.

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