

This Report will be made public on 16 November 2021



Report Number **C/21/44**

To: Cabinet
Date: 24 November 2021
Status: Key Decision
Responsible Officer: Frederick Miller - Transportation Lead Specialist
Alastair Clifford - Chief Officer Operations

Cabinet Member: Councillor Lesley Whybrow, Cabinet Member for the Environment
Councillor Ray Field, Cabinet Member for Transport and Digital Transformation

SUBJECT: DISTRICT OWNED STREET LIGHTING

SUMMARY: This proposal will contribute to the council's carbon reduction options plan by converting street lights to low cost/ low carbon LED lighting. This report details issues arising through forced maintenance changes to the council's street lighting stock and proposes the most cost effective long term management of the assets.

REASONS FOR RECOMMENDATIONS:

The conversion of street lights to LED is included in the council's immediate actions/measures to reduce carbon emissions, and is part of the Carbon Action Plan. The long term provision and maintenance of the district council's street light stock poses a significant capital and revenue cost risk. Agreeing to the proposed upgrade and asset handover limits the total expenditure to the council, significantly reduces carbon emissions, and will ensure the safety of all street lights.

RECOMMENDATIONS:

1. To receive and note report C/21/44.
2. To agree to proceed with upgrading all district owned highway lights, and transferring assets to KCC where possible including the payment of the commuted sum of £70,034.
3. To approve funding from the years 21/22 and 22/23 from the Climate Change Reserve of £478,369 to cover the costs of the LED conversion for all assets and the commuted sum to KCC for adoption of 340 assets.
4. To seek full Council approval for a capital budget of £745,000 for the two phases of street lighting works outlined in section 3 of the report to be funded from the Climate Change Reserve (£408,335) and the Capital Receipts Reserve (£336,665).

- 5. To reduce the revenue maintenance budget from £71,300 to £20k in the financial year 2023/24 in light of savings made from the upgrade.**

1. BACKGROUND

- 1.1 FHDC owns and maintains 1340 street lights, which are located in car parks, housing land, open spaces and highway across the district.
- 1.2 Many of the lights were handed down to the district from a number of sources:
 - when the existing boroughs and rural districts were combined in 1973
 - in 2004 when Kent County Council took the Shepway Highways Unit back in house, and
 - over time when Kent County Council could not find an owner of a street light it was presumed to be a district council item. This is more prevalent with street lights that are in the countryside and very rarely attended, as well as on private roads where the developer has gone bankrupt without signing an official highway adoption agreement
- 1.3 The majority of the stock are high pressure sodium lights with higher energy consumption and emissions, and pre date 2004 when the highways unit was taken in house by KCC.
- 1.4 FHDC spends around £72k annually on maintenance and repair, and to cover electricity bills.
- 1.5 KCC is currently responsible for the repair and maintenance of all FHDC's street lighting stock under a maintenance contract. Over the past few years, KCC have upgraded all of their own street lights across the county to LED lighting.
- 1.6 KCC advised FHDC in 2018 that they will no longer be able to maintain the district's stock; however, subject to location and upgrading of assets to KCC's specification, including design to meet highway lighting standards, it would be possible to transfer some of the highway lighting stock to the County Council's ownership.
- 1.7 KCC set the following criteria for adoption:
 - a) The lights must be on an adopted highway.
 - b) Lights will be considered for adoption only where they are necessary to light the highway in line with KCC's policy.
 - c) Lights must be within a system of street lighting – individual/isolated lights which do not contribute to the lighting policy as a whole will not be considered for adoption.
 - d) Pole mounted lights will not be considered for adoption.
 - e) Where deemed to be in a location that could be adopted, the lights must meet the most current KCC specification, including lighting design.
 - f) Payment of an agreed commuted sum for the ongoing maintenance of the adopted lighting.
 - Commuted sum – maintenance over 20 years
 - Electrical testing every 6 years: 3 x £6.96 = £20.88
 - Structural testing (average): 2 X £10.45 = £20.90
 - CMS maintenance charge: 20 x £0.66 = £13.20
 - Energy (51.85kWh x £0.1455): 20 x £7.55 = £151.00

- Total: £205.98
- Where lights are not deemed to be adoptable, the decision to continue maintaining the lights or to remove them will be a local decision made by the District Council.

1.8 CLT approved funding in 2019 to survey and carry out structural testing on all street lights on the highway. CLT also agreed a review of all assets to establish which ones could be provisionally adopted by KCC once the upgrade work is complete. A summary of the findings are shown in section 2.

2. SURVEY AND ASSET REVIEW FINDINGS

2.1 This project required a total of 1084 assets to be surveyed. Non-highway lights such as those in car parks and open spaces were excluded.

2.2 Where possible, the estimated dates of installation of the assets have been shown in the table below. This is based on the inspections, considering type, condition of the assets along with the electrical components that form the lantern and operation of the unit.

Approximate date of installation	Number of assets
1970s	153
1980s	187
1990s	416
2000s	231
2005	34
2010	19
2015 onwards	25

2.3 The remaining life left for an asset is shown below, and is based on the whole integrity of the unit. This may be electrical or mechanical.

Estimated remaining life (years)	Number of assets
0-5	31
6-10	298
11-15	407
16-20	256
25+	44
Not Tested	48

2.4 Should assets remain under FHDC's ownership, the following repair and maintenance arrangements are recommended.

Date required	Number of assets
Action required now	31
By May 2023	755
By May 2025	250
Untested	48

3. PROJECTED COSTS

- 3.1 In light of the survey findings and the withdrawal of the KCC maintenance agreement, officers sought a quotation for an upgrade of all highway assets from KCC's street lighting maintenance contractor-Bouygues. The table below provides the estimated number of assets that could be transferred and retained.

Asset	Quantity
Columns available for upgrade for KCC adoption	340
Remaining assets not suitable for adoption but can be LED upgraded for easier maintenance and energy savings	723
Columns to be permanently disconnected/removed from this project	21

- 3.2 As shown on the table above, KCC have indicated 340 lights are suitable for adoption once upgraded. 723 of the street lights surveyed do not meet the criteria set by KCC for adoption. 21 assets are to be disconnected/removed if the preferred option is agreed. Officers will continue to have discussions with KCC as there are around 150 assets which although do not fully meet the criteria for adoption, may be considered adoptable on further negotiations.
- 3.3 The total cost for the LED conversion of all assets, 50% of project management fees and the adoption fees is £408,335. Officers recommend that this cost is met from the Climate Change Reserve. The revenue cost for the commuted sum of £70,034 is also proposed to be met from the Climate Change Reserve making the total call on the reserve being £478,369.
- 3.4 Cost for essential repairs and replacement of faulty assets (including the other 50% in project management fees) is £336,665. Officers recommend that this cost is met from the council's available capital receipts. It should be noted that this may impact upon the council's future capital investment plans.
- 3.5 It should also be noted that the Salix Energy Efficient Loans Scheme is also available and this allows local authorities to apply for an interest free loan to finance up to 100% of the costs of energy saving projects. Other local authorities have used this approach and have typically funded up to 80% of the project costs through this method. Typically, the loan has to be repaid in full over a five year period. Based on 80% of the £745k capital funding cost outlined in option 3 below, the annual loan principal repayment would be £119.2k and this would be a charge to the General Fund through the Minimum Revenue Provision (MRP) requirement for capital expenditure met from borrowing. The MRP charge would mean an increased net cost of about £67k to the General Fund for the next five years, after allowing for the saving in revenue costs, compared to funding the capital expenditure from internal resources.

4. OPTIONS

4.1 With the removal of the option to continue to have KCC maintain the lights on FHDC's behalf, the results of the survey and the ageing stock, a full options appraisal and financial modelling exercise has been completed.

4.2 The following options have been considered:

Option 1 - Do nothing, the council continues to maintain and replace the assets as and when necessary.

- The potential to significantly reduce carbon emissions by transitioning from high pressure sodium to LED lighting will be lost.
- The option of continuing to use KCC to maintain the lights for around £25k per annum will be removed as the current lights will not be within the standard that the contract will cover.
- Funding of £55,000 will need to be provided this financial year for safety related works.
- Additional revenue funding for the amber lights of £100k in each of the financial years 2022/23 and 2023/24 would need to be provided for maintenance purposes. Further analysis of this increase has not been calculated beyond year 2023/24, however considering the amount of ageing lights likely requiring works, this has been modelled at £75,000 per annum (plus 3% RPI).
- Revenue funding for reactive repairs and electricity would remain at around £72k per annum.
- Officer time will need to be committed to the sourcing of a suitable contractor and managing the stock moving forward.

Option 2 - Upgrade and keep all lights, FHDC would upgrade all of its lights to KCC Specification, but keep and maintain them itself.

- Significant reduction in carbon emissions
- Capital funding of £745k to be provided in the financial year 21/22. This includes a 10% contingency to cover any additional works.
- Revenue funding for reactive repairs and electricity would reduce to £40,000 per annum.
- All lighting stock could continue to be maintained and managed by the KCC contractor.

Option 3 – Upgrade all and transfer where possible, FHDC would upgrade all street lights and transfer all adoptable assets (340) to KCC.

- Significant reduction in carbon emissions
- Capital funding of £745k (10% contingency included) to be provided in the financial year 21/22.
- Revenue funding to pay KCC £70,034 as the commuted sum for adoption.
- Transfer 340 adoptable assets to KCC.

- Revenue funding for reactive repairs and electricity would reduce to around £20k per annum.

Option 4 – Upgrade transferable assets and transfer, leave others.

FHDC would upgrade only the transferable assets and transfer all adoptable assets (340) to KCC. The remaining stock would continue to be repaired and managed through the reactive process.

- Only about a third of the assets will be upgraded to energy efficient LED. Overall, energy costs, carbon emissions, light pollution, and maintenance costs will continue to be high.
- Funding of around £55,000 will need to be provided this financial year for safety related works on non-transferable assets.
- Capital funding of £239k to be provided in the financial year 21/22 to upgrade the transferrable assets.
- Revenue funding to pay KCC £70,034 as the commuted sum
- Revenue funding for reactive repairs and electricity would reduce to £40,000 per annum.
- Additional revenue funding for the ‘amber lights’ of around £100k in each of the financial years 2022/23 and 2023/24 would need to be provided for maintenance purposes. Further analysis of this increase has not been calculated beyond year 23/24, however considering the amount of ageing lights likely requiring works, this has been modelled at £50,000 per annum (plus 3% RPI).
- Officer time will need to be committed to the sourcing of a suitable contractor and managing the stock moving forward.

5. OPTION APPRAISAL

5.1 An appraisal of each of the options is shown below.

Option 1 – Do nothing – should be discredited as it does not address one of the council’s key actions in the Carbon Action Plan to reduce carbon emissions. It leaves FHDC with both a large revenue and capital cost to meet, as well as ever increasing problem of ageing stock. It also requires the council to appoint a works contractor and provide additional in-house technical expertise to manage the stock moving forward.

Option 2 - Upgrade and keep all lights - provides a reasonable methodology for the future management of the stock, initial investment into the stock reduces and maintains a reasonable revenue outgoing for the foreseeable future. It does however long term, leave the district with a large number of lights to maintain that we could dispense with, and the potential risk in the financial model becomes greater as time increases. This option requires less initial capital investment than option 3, due to the removal of paying the commuted sum, but the long term costs do amount to more.

Option 3 – Upgrade all and transfer where possible - provides the most appropriate option for the future management of the lights. An initial

investment into the stock allows the council to remove the burden of a large percentage of the lights. The stock left will be cheaper to run, easier to maintain, and contracts and maintenance obligations are already available or in place to deliver this.

Option 4 - Upgrade transferable assets and transfer, leave others - allows the council to remove the burden of the transferable assets, but leaves some of the most difficult ones in-house so thereby not fulfilling one of the key actions to significantly reduce carbon emissions. It also requires the council to appoint a works contractor and provide additional in-house technical expertise to manage the stock moving forward.

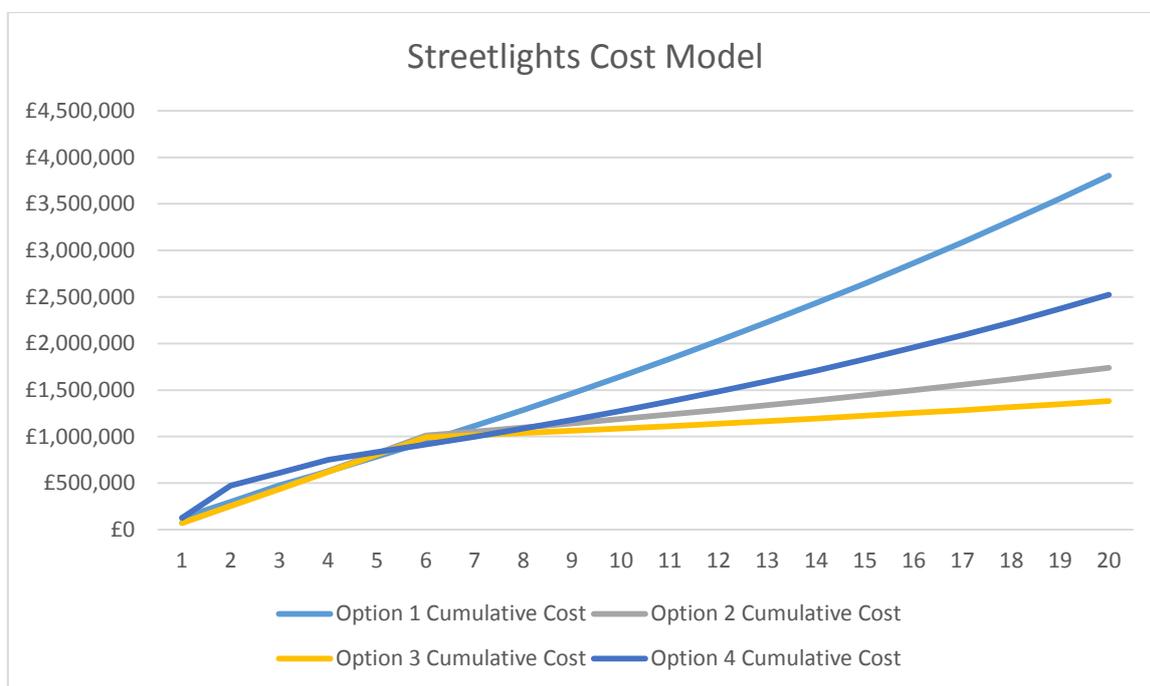
6. Project Management

- 6.1 The upgrade works will be carried out by KCC's Street lighting contractor, Bouygues Energies & Services Infrastructure. KCC entered into the Contract between themselves and Bouygues E&S Infrastructure UK Limited for the maintenance and replacement of street lighting units, illuminated signs, bollards and associated equipment; street lighting design; replacement of existing street lighting luminaires with LED luminaires; provision of a central management system; emergency response and structural and electrical testing. The contract commenced on 14 March 2016 for a period of 15 years and 2 months.
- 6.2 Under Kent County Council Street Lighting Term Services Contract Access Agreement, districts may enter into Call-Off Task Orders for Services in accordance with the provisions of this Agreement and the Contract.
- 6.3 There is a considerable lead time (upwards of 5 months on the parts and materials to complete the project). Therefore it is recommended that in the financial year 21/22 the climate change funds are used to enable the project to start.
- 6.4 In the year 22/23 once the request for funds has been through the capital works funding process the rest of the works can be ordered.

7. FINANCE

- 7.1 A financial model has been developed that considers the aforementioned 4 options. The key inputs to the model are;
- Urgent capital works
 - LED upgrade
 - Replacement assets and essential repairs
 - Revenue increase/decreases.
 - The commuted sum for adoption.
 - Allowance has been made where appropriate for RPI increases and increased costs associated with further ageing assets.
 - Excluded from the model is officer time needed to manage the programs.

7.2 The financial model output can be seen in the graph below. Options 3 is clearly the most cost-effective over the period. Full details of the model are shown in appendix 1.



8. CARBON EMISSIONS

8.1 The conversion of street lights to LED is one of the immediate actions/measures to reduce carbon emissions listed in the council's Carbon Action Plan.

8.2 The upgrade of all FHDC lights to LED will achieve both revenue savings and carbon emissions reduction. The table below shows the potential carbon savings the council will achieve from this project.

Lamp Model	Number of lamps	Fixture Wattage	Carbon Footprint
High Pressure Sodium (current)	1084	90	169,999 Kg
LED Model (Proposed)	1084	18	34,000 Kg
Carbon Savings / Year			135,999 Kg

9. Biodiversity

9.1 Officers have considered any potential impact the new LED lights will have on biodiversity in light of a recent article published in The Guardian Newspaper about LED lamps contributing to insect decline. The article can be found [here](#).

- 9.2 The Institute of Lighting Professionals (ILP) have responded to the research done by the 'Science Advances', which form the basis of the published article. The full report is shown in appendix 2. It states that 'Science Advances' research is inconclusive, and did not consider the varying lighting levels/colour/temperature, and may also not be representative of the wider insect populations.
- 9.3 Kent County Council recently converted around 120000 street lights to LED. Since completion of this project, they have reported that they have had very few enquiries/complaints about insects, and those have been about the increase in them in the vicinity of the LED light, not the decline.
- 9.4 The new LED lights proposed are to KCC's specification and are 4000k – neutral white, and can be dimmed as appropriate to the environment. KCC have stated they would not want any filters on assets for adoption.

10. CONCLUSION

- 10.1 Due to the urgency to reduce carbon emissions, and the withdrawal of the option to continue with the KCC maintenance contract, officers have had to consider the future options of managing the FHDC owned lighting stock.
- 10.2 Due diligence in understanding the condition of our existing assets has been completed by undertaking the full survey. This provided budgets and timeframes in which to model the forward options.
- 10.3 Option 3 – Upgrade all and transfer where possible provides the most suitable option moving forward.
- 10.4 It is therefore recommended that the LED conversion works, which includes a split in the project management costs, plus the commuted sum totaling £478,369 are funded through the Climate Change Reserve, and that the remaining costs of £336,665 for the replacement assets and essential repairs be met from the council's available capital receipts.
- 10.5 It should also be noted that the Salix Energy Efficient Loans Scheme is also available, however this would mean an estimated annual MRP charge to the General Fund of £119.2k for 5 years, negating the projected revenue benefits outlined in option 3.
- 10.6 Full Council approval will be required for the capital budget of £745,000 required for the street lighting works outlined in this report.

11. RISK MANAGEMENT ISSUES

- 11.1 There is not a great deal of risk management involved in this issue

Perceived risk	Seriousness	Likelihood	Preventative action
The revenue savings stated	Medium	Low	Officers work closely with supplier and

<p>assumes that the upgrade work is completed on time, and KCC adopts the number of lights indicated promptly. There is a risk that the upgrade and adoption work may be delayed</p>			<p>KCC to undertake the work required in accordance with KCC requirements.</p>
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12. LEGAL/FINANCIAL AND OTHER CONTROLS/POLICY MATTERS

12.1 Legal Officer's Comments (NE)

The provision of new street lighting is a discretionary power, not a duty, and the Courts have held that no liability arises where a local authority decides to withdraw street lighting for reasons of economy. However, where street lighting is provided there is a duty to maintain it in a safe condition.

12.2 Finance Officer's Comments (LW)

The key financial considerations are outlined in the body of the report. If the interest free loan option from Salix was taken up this would mean an MRP charge being made for five years leading to an increased cost to the General Fund rather than the saving of £51k expected against the current Street Lighting budget. Sufficient capital receipts are available to meet the proposed funding for this scheme but this may impact on the ability for investment in future capital schemes. As no budget exists for the capital expenditure of £745k full Council approval will be required for this scheme.

12.3 Diversities and Equalities Implications (FM)

There are no equalities and diversities implications.

12.4 Climate Change Implications (OF)

As outlined in the report, the recommended option will significantly contribute towards reducing carbon emissions therefore the overall climate change impact of this would be positive.

However, consideration should be given to the LED streetlights being well designed and away from important known habitats to ensure reduction in biodiversity loss.

13. CONTACT OFFICERS AND BACKGROUND DOCUMENTS

Councillors with any questions arising out of this report should contact the following officer prior to the meeting

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Appendices:

Appendix 1: Upgrade options costs and ROI

Appendix 2: ILP response to research into insect decline and artificial light at night