

Local Highways Maintenance Challenge Fund



Department
for Transport

Application Form

The level of information provided should be proportionate to the size and complexity of the scheme proposed. As a guide, for a small scheme we would suggest around 10 to 15 pages including annexes would be appropriate and for a larger scheme, 15 to 30 pages.

A separate application form should be completed for each scheme up to a maximum of one large bid and one small bid for each local highway Authority.

Applicant Information

Local Authority name(s)*:	Kent County Council
Bid Manager Name and position:	Robert Clark Project Manager Highways, Transportation and Waste Kent County Council
Contact telephone number:	03000415951
Email address:	Robert.clark@kent.gov.uk
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When authorities submit a bid for funding to the Department, as part of the Government's commitment to greater openness in the public sector under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, they must also publish a version excluding any commercially sensitive information on their own website within two working days of submitting the final bid to the Department. The Department reserves the right to deem the business case as non-compliant if this is not adhered to.

Please specify the weblink where this bid will be published: <http://www.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies>

SECTION A - Scheme description and funding profile

A1. Scheme name: Energy Efficiency Scheme – Street Lighting

A2. Headline description:
Kent County Council has approved a major scheme to upgrade its entire stock of street lighting to Light Emitting Diode (LED) units. This stock will be controlled using a Central Management System (CMS). This will enable a flexible approach to reducing energy consumption, carbon emissions and therefore substantial revenue costs.

A3. Geographical area:
Kent County Council is one of the largest lighting authorities in the UK with around c.120, 000 street lights and 25,000 lit signs and bollards. The whole of the Authority’s highway network will be subject to conversion of this proposed scheme which will be the largest of its type in the United Kingdom.

OS Grid Reference: N/A
Postcode: N/A

A4. Type of bid (please tick relevant box):

Small project bids (requiring DfT funding of between £5m and £20m)

Major maintenance, strengthening or renewal of bridges, tunnels, retaining walls or other structures

Major maintenance or renewal of carriageways (roads)

Major maintenance or renewal of footways or cycleways

Major maintenance or renewal of drainage assets

Upgrade of Street Lighting

Large project bids (requiring DfT funding of between £20m plus)

Major maintenance, strengthening or renewal of bridges, tunnels, retaining walls or other structures

Major maintenance or renewal of carriageways (roads)

Major maintenance or renewal of footways or cycleways

Major maintenance or renewal of drainage assets

Upgrade of Street Lighting

A5. Equality Analysis

Has any Equality Analysis been undertaken in line with the Equality Duty? Yes No

SECTION B – The Business Case

B1. The Scheme – Summary/History

In 2013/14, the cost of illuminating the street lighting estate was around £5.7m, a cost that is rising with unfunded energy price pressures ranging from 8 – 11% per annum. The introduction of the Carbon Reduction Commitment (CRC) levy in 2014/15 set at £16 per tonne has added a further unfunded revenue pressure.

In 2014/15, the Authority mitigated this pressure by introducing a pilot scheme to switch off 1200 surplus lights in certain roads (lights that would not be introduced if these roads were designed today), but more substantially it converted approximately 60k street lights in residential and minor roads, to part-night operation. This has reduced energy consumption and carbon emissions delivering an annual saving of £900k. Part-night lighting has not resulted in increased crime; however fear of crime and feeling unsafe has repeatedly been raised by the Public. The Authority is now seeking to implement a sustainable LED solution that addresses community concerns while achieving further significant savings.

Converting the Authority's street lights to LED lanterns will reduce energy consumption and carbon emissions by around 60%, saving more than £5.2m p.a. The CMS provides total control of the lighting estate enabling the Authority to dim lights in selected areas, maximising further savings in energy and carbon.

B2. The Strategic Case

Current Position

Of the Authority's street lights, around 90% have sodium lamps, which are inefficient costing approximately £9m p.a. to illuminate and maintain (cost excludes column replacements). There are around 120,000 street lights throughout the County that are divided into the following categories:

- Residential (70k)
- Main Traffic Routes (40k)
- Town Centres (7k)

A 10% rise in energy prices this year together with the carbon levy will increase this cost by £880,000, effectively wiping out the savings delivered by part night lighting. Given the trend in energy prices, annual charges remain substantially high, and unaffordable. Notwithstanding major positive environmental gains of annual carbon reduction by 5,000 tonnes, the Authority has found a solution which delivers public expectation but critically, one that reduces the much needed revenue cost.

Available Technology

Improvements in LED technology have resulted in better product reliability and much lower costs. Manufacturers now guarantee LED products for up to twenty five years, meaning less risk and less cost to Clients. This has led the Authority to undertake this conversion now, compared to three years ago, where it was considered unaffordable and without the hardware performance levels that are forecast today.

In recent years, the capital cost of LED lanterns has fallen significantly, these are now comparative in cost to conventional units; consensus within the industry indicates further decreases are unlikely, or at best, relatively small.

The control mechanism used to manage illumination levels is known as a CMS. This is a highly versatile system that coupled with LEDs; enables complete remote control of street lighting including dimming, switching on/off, fault reporting, metering and acts as an asset inventory database. The fault reporting element of CMS will offer a significant improvement in customer and operational service, this system will identify faults in real time negating the need for night scouts or members of the public reporting them.

Benefits

1. Economic

Converting to LED will reduce the annual cost of energy consumption by 60%. With the improvement of reliability and longer manufacturer's warranties on offer, the budget for maintenance will be reduced with all defects being met by the contractor throughout the duration of the contract. Finally the Authority's carbon emissions will decrease resulting in a reduction of the Carbon Emissions tax. The annual cost will reduce by the following:

KCC - Annual Costs (£000s)	Now	Post LED	Benefit
Energy	£5,680	£2,272	£3,408
CRC Tax	£352	£141	£211
Maintenance	£3,600	£1,820	£1,780
CMS Annual Fee	£0	£150	-£150
Totals	£9,632	£4,383	£5,249

The Authority has already spent £6.5m to replace its life expired light columns; a further £3.5m has been allocated to spent in the coming financial year. In total, 10,000 columns will have been replaced meaning the stock will be in good condition in readiness to receive LED conversion.

2. Environmental

As well as the CRC saving described above, by delivering this programme, it meets the Authority's entire annual carbon reduction target of 2.6% for the next five years. Converting this lighting to LED would more than meet this commitment for several years beyond this target by reducing its emissions from 22,500 to 9,500 tonnes.

3. Social

A key benefit of converting to LED lighting with CMS is complete management of street lighting including dimming, switch-on/switch-off, fault reporting etc. The fault reporting element of CMS will offer significant improvement in customer service in that it will enable real time reporting of faults by the Authority – a record of which will be published on the Authority’s website, with estimated repair times.

The CMS will allow the Authority to make amendments to future policies with the flexibility of dimming profiles to alter its service provision to its residents. By fully installing a more controlled street lighting infrastructure, the Authority can demonstrate this potential government funding will meet the needs of the Kent public. This will enable restoration all night lighting which will result the communities feeling safe and less vulnerable.

B3. The Financial Case – Project Costs

Please complete the following tables. **Figures should be entered in £000s** (i.e. £10,000 = 10).

Table A: Funding profile (Nominal terms)

£000s	2015-16	2016-17	2017-18	Total
<i>DfT Funding Sought</i>	£1,823	£5,733	£10,504	£18,060
<i>LA Contribution</i>	£3,542*	£9,722*	£8,681*	£22,575*
<i>Other Third Party Funding</i>	£0	£0	£0	£0
<i>Total</i>	£5,365	£15,455	£19,815	£40,635

*SALIX Loan

Notes:

- 1) The Programme will be completed by 2017-18.
- 2) The contribution from the Authority is 55% through a SALIX 0% loan which is £22m.
- 3) The investment will be paid back in less than 8 years.

B4. The Financial Case - Local Contribution / Third Party Funding

a) Non-DfT contribution

In August 2014, Salix Finance Ltd confirmed their approval to provide the Authority a loan of £22m, through their Energy Efficiency loan scheme which is the biggest of this type. Salix approved the Authority’s business case and cost analysis.

The Authority will receive the loan draw-down from Salix upon the successful completion of works at the end of each annual phase throughout the three years. Interim funding can be made available by the Authority to meet its contract obligations.

The Authority will be required to pay back the loan within five years through the savings generated as part of this conversion. Ultimately the Authority will be contributing 55% of the total scheme value through a 0% loan.

Attached are copies of the signed agreement (20 January 2015) between both parties which provides evidence of third party contributions, the level of commitment and when they will become available is detailed within Appendix 1.

Also attached is a copy of Salix's assessment of our business case for this project which contributed to the rationale behind the loan detailed in Appendix 2.

b) Have you appended a letter(s) to support this case?

Yes No N/A

c) Other funding applications

The project budget identifies the £22m loan from Salix and that the project will commence in autumn 2015 once a full procurement exercise has been completed. The Authority is able to provide prudential borrowing to cover this shortfall, however it can only be provided over a 5-year period and therefore the savings in energy consumption and associated carbon levy's will take some time to fully achieve, as all borrowing needs to be repaid and there is insufficient budget to repay the required loan over the shortened 3-year period.

There are also a number of competing priorities for capital funding within the Authority, particularly with the growth need for school places, and therefore a successful application would allow the project to be accelerated and be completed within 3 years which meets the DfT timescale. This accelerates the financing savings, the carbon reduction and enables a more efficient monitoring/fault system for what is one of the largest streetlight networks in the country. It also enables the Authority to divert the prudential borrowing to other key priority areas where the timescale is not as short as 3 years and hence the repayments can be matched to that project's life cycle.

There have been no other external funding applications in relation to this scheme. The Authority understands that there may be an opportunity for EU funding. This is unlikely to yield positive results as less than a quarter of the total £169m fund will be assigned to such innovative and energy reduction schemes. No level of other funding is being included within this business case but depending on the outcomes of this application, options will continue to be explored.

B5. The Financial Case – Affordability and Financial Risk

Project costs have been developed with Amey, the Authority's street lighting Consultant/Contractor; who have experience of delivering LED programmes. Cost analysis has been completed following market engagement with providers who deliver works, manufacture the materials and hardware. The project costs have been scrutinised by Salix forming the basis of their loan agreement. The business case has been developed to capture reductions in the cost of a LED luminaire and annexed with this application.

Prudent planning considers that should savings not be delivered by the project, affordability would be affected. The basis of the Salix loan is repayments are to be funded directly from energy savings. Should these savings not be made, the Authority will underwrite the loan repayments corporately.

The contractual term will last up to 20 years, the energy savings of conversion are prudently calculated at 60%, technology is evolving so it is anticipated this is the minimum saving. The contract will include a clause around the supply of the latest, effective technology, if energy consumption reduces over time, replacement hardware within the term of implementation, or warranty period, is likely to be 65-70% energy efficient. This is good risk mitigation offering the Authority a sustained energy reduction strategy.

The financial risks that could affect the affordability are as follows:

- Increase in the project cost compared to estimate – if the project costs increase or savings decrease, then the terms of the Salix loan is that the value may be reassessed.
- Reduction in energy costs – the 60% efficiency of LEDs is a prudent measure and it is anticipated that the savings will be higher.
- CRC reduces or is scrapped – the saving for the project would reduce but overall this would still represent a saving for the Authority.
- LED longevity is not 20 years – market engagement has indicated this is realistic. The risk is not within the product as this is guaranteed. The risk is the labour cost of installation so commercial consideration would apply when developing long term maintenance agreements.

B6. The Economic Case – Value for Money

As part of the Authority's application to SALIX it had to provide whole life costs comparing the base line and the implementation of the LED conversion. At the time of the application, the Authority used data that estimated the rise of energy prices would be around 10%. Within the recent volatile market there are varying views predicting differing figures, it can be realistically estimated that energy prices on a whole will increase over the next 25 years. To help the BCR process the Authority has included a ratio for both 5% and 10% energy increases. Below shows the summary of the BCR ratio with full details attached with the application in Appendix 3.

KCC - Annual Costs (Based on 5% Energy Price Increase)	Baseline Totals	LED Conversion Totals
Energy Cost	£279,591,257	£117,339,898
CRC Tax	£13,608,724	£6,075,197
Capital budget	£140,718,604	£140,718,604
Revenue Budget	£140,586,676	£69,021,736
KCC staff costs (reductions)		-£6,054,003
LED & CMS - Capital & Installation Cost		£40,633,835
Totals	£574,505,260	£367,735,266
Savings Against the Baseline	£206,769,994	
BCR Ratio	5.09	

KCC - Annual Costs (Based on 10% Energy Price Increase)	Baseline Totals	LED Conversion Totals
Energy Cost	£597,225,676	£201,440,257
CRC Tax	£13,608,724	£6,075,197
Capital budget	£140,718,604	£140,718,604
Revenue Budget	£140,586,676	£69,021,736
KCC staff costs (reductions)	£892,139,680	-£6,054,003
LED & CMS - Capital & Installation Cost		£40,633,835
Totals	£892,139,680	£451,835,625
Savings Against the Baseline	£440,304,054	
BCR Ratio	10.84	

Please note that the original application to SALIX was based on a four year period. Following the market engagement event detailed in B7, the market explicitly confirmed that they could deliver the scheme in less than three years with no resource problems. This is supported by current PFI arrangements nearing the end of their delivery period and such market appetite is high. As a result the BCR will show the key energy saving in 2019/20, when in fact this will be bought forward a year as the savings will be realised sooner which enhances this business case.

a) Please provide the following data which may form a key part of our assessment:

<p>A description of the do-minimum situation (i.e. what would happen without Challenge Fund investment).</p>	<p>The current cost of the street lighting service is around £9m. Over the next 25 years the cost of the service will continue to rise above the rate of inflation to over £27m (include indexation) excluding capital budgets.</p> <p>Maintaining street lighting will become unsustainable and whole sale switch off and removal of columns will result. This may increase crime as well as the community feel unsafe and vulnerable. While it may be politically untenable, the Authority may not have a choice but to switch street lights off.</p>
<p>Details of significant monetised and non-monetised costs and benefits of the scheme (quantified where possible)</p>	<ul style="list-style-type: none"> • Energy reduction • Carbon reduction • Reduction in Maintenance costs • Reduction in obtrusive light and sky glow • Better quality lighting • Better control over our asset • Longevity • Future proofing the Authority with regards to policy change. • Much greater level of Member and Public satisfaction

Length of scheme (km)	Around 120,000 spread over 12,000 roads within the county.
Number of vehicles on affected section (AADT in vehicles and if possible split by vehicle type) – to include details of data (age etc.) supporting this estimate.	n/a
b) Other VfM information where relevant - depending on type of scheme bid:	
Details of required restrictions/closures if funding not provided (e.g. type of restrictions; timing/duration of restrictions; etc.)	n/a
Length of any diversion route, if closure is required (over and above existing route) (km)	n/a
Regularity/duration of closures due to flooding: (e.g. number of closures per year; average length of closure (hrs); etc.)	n/a
Number and severity of accidents: both for the do minimum and the forecast impact of the scheme (e.g. existing number of accidents and/or accident rate; forecast number of accidents and or accident rate with and without the scheme)	n/a
Number of existing cyclists; forecasts of cycling usage with and without the scheme (and if available length of journey)	n/a

B7. The Commercial Case

As part of the cost analysis to determine the affordability of the scheme, the Authority held two market engagement days in December 2014. This process allowed the Authority to gather industry information from the lantern manufacturers, CMS providers and contractors to assist determining an appropriate procurement strategy. Following this, the Authority has agreed to contract with a single contractor to deliver the scheme; this will include a lantern manufacturer, CMS provider and potentially other suppliers within the supply chain. This will minimise the Authority's risk of managing different parties by appointing one principle contractor. Furthermore they will have responsibility of the whole project delivery with accountable guarantees. This is a tried and tested process employed by the Authority which is demonstrated through the operation of it key contracts.

The Authority has learned that the market would be concentrated due to the resources required to deliver a scheme of this size. It has been proposed that a Pre-Qualification Questionnaire would not be required and as a result, an Open tender process will be implemented. This includes mandatory requirements (e.g. financial, experience and technical capability), which contractors would have to pass before their quality and price submission is assessed. This will reduce the timescales of the procurement to help meet the tight deadline of work commencement for the 2nd November 2015.

The Authority will issue tenders to the Open Market on the 24th April 2015 for over forty days (via e-sourcing software) with a deadline date of 4th June 2015. The evaluation process is to last 16 working days with 10 contingency days added. It is estimated that the award process will take 27 working days prior to a three month mobilisation period. This should allow the Authority ample time to make the best value for money decision for a scheme of this size.

This is all detailed in attached project plan in Appendix 4.

B8. Management Case - Delivery

a) Has a project plan been appended to your bid?

This project plan has attached in Appendix 4.

Yes No

b) Lessons Learnt

The Authority is delivering DfT funded schemes, which include pinchpoint-funded and LSTF schemes. Kent Schemes are delivered to time, this is enabled through early tactical decisions being taken that ensure commercial value is delivered through appropriate open procurement routes. Strategic decision making means that flexibility is pre-empted to deliver appropriate additional programmes of work. Existing Major Schemes Contractors have been engaged from the outset, with appropriate OJEU limits and contract durations set in anticipation of additional funding.

B9. Management Case – Governance

The Authority has approved this scheme in principle full funding can be secured. While the Authority has received a 0% loan, this application seeks the balance of £18m.

For the Authority to meet its timescales it will require agreement from the following:

- Internal Corporate Management
- Cabinet Member
- Procurement Board

Behdad Haratbar, Head of Programmed Works is the Senior Responsible Officer who has been given the approval to proceed with this scheme. As this scheme falls within his management responsibility, he is accountable for the delivery of street lighting within the county.

Robert Clark, Project Manager is appointed to lead the delivery of this scheme within the timescales detailed. He will liaise with the Street Lighting Manager who is the key client and will manage the contract once delivery of the scheme has been completed. A team of five people and the Authority's Term Consultant will deliver the scheme.

Due to the expenditure being in excess of £1m, it is the decision of the individual cabinet members/collective cabinet to set out and agree delivery of this scheme. This has been set for the 9 April 2015. A further 8 working days will be required before the decision can be implemented.

In addition to the above, the scheme will need approval from the procurement board which is scheduled for the 31 March 2015. This will ensure the procurement strategy is sufficient to meet the Authority's requirement.

An organogram has been attached with this document in Appendix 5.

B10. Management Case - Risk Management

The following top five risks are detailed in the Risk Register attached with this document in Appendix 6:

Has a risk register been appended to your bid?

Yes

No

SECTION C – Monitoring, Evaluation and Benefits Realisation

C1. Benefits Realisation

The benefits are principally economic. Investing in this scheme will significantly reduce ongoing energy and revenue costs. For every pound invested on this scheme the Authority will realise between £5.09 to £10.84 of benefit, as illustrated in Appendix 3.

The Authority is under pressure to reduce its costs and deliver the same level of service. Given the public concern in respect of part-night lighting and the resulting fear of crime and feeling vulnerable, this is an excellent opportunity for the Authority to restore all night lighting will make a further 60% saving in energy consumption and carbon emissions.

The Authority can utilise CMS to report on energy usage and provide forecasting to improve ways of offering efficient lighting policies. This may offer opportunities to take advantage of future technology of using radio frequencies to offer other services that are being utilised within Smart Cities.

Overall street lighting can achieve levels of savings easily that may not be achieved elsewhere in the Authority. This will allow the Authority to bring forward the scheme and deliver the savings earlier. With the opportunity to convert one of the largest street light networks into the modern age of technology, it provides a win-win for all of those that will be involved.

Note: see table in B2.

C2. Monitoring and Evaluation

Senior Highway Officers meet quarterly with its energy supplier, Laser – this is to monitor actual and forecast energy consumption and the agree rebates and identify any pressures.

Energy reports are produced and will be published on the Authority's website, showing an actual decrease against forecast in consumption as the project is implemented. This will include energy costs, with further engagement with Laser regarding the most efficient way to purchase energy in the future.

All street lighting assets are kept up to date within the Works Asset Management system (WAMs), faults are logged against each asset and resolutions are measured against service standards. The CMS will identify LED conversion, faults and the potential for faults allowing for early interventions.

Works and warranty defects will follow established process; this will be managed through the WAMs system. Contractual and project management will follow established commercial practises, these include escalation and administration of contractual penalties.

The performance and condition of the Street Lighting asset is published in the annual asset management reports which are presented to the Cabinet Committee annually.

Full adherence to the MTFP targets and expenditure against budget is monitored monthly through Financial Monitoring Group and to Corporate Finance.

Customer service is reported through WAMs with the collation of complaint and commendation data. The annual Customer Tracker Survey reports annual satisfaction levels directly from the Public.

All the aforementioned monitoring and evaluation is reported for public consumption via the Authority's Core Monitoring report for the Cabinet.

SECTION D: Declarations

D1. Senior Responsible Owner Declaration

As Senior Responsible Owner for Energy Efficiency Scheme I hereby submit this request for approval to DfT on behalf of Kent County Council and confirm that I have the necessary Authority to do so.

I confirm that Kent County Council will have all the necessary powers in place to ensure the planned timescales in the application can be realised.

Name: Behdad Haratbar

Signed:

Position: Head of Service for Programmed Works
Highways, Transportation and Waste
Kent County Council



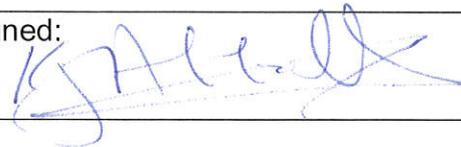
D2. Section 151 Officer Declaration

As Section 151 Officer for Kent County Council I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that Kent County Council

- has allocated sufficient budget to deliver this scheme on the basis of its proposed funding contribution
- will allocate sufficient staff and other necessary resources to deliver this scheme on time and on budget
- accepts responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties
- accepts responsibility for meeting any ongoing revenue requirements in relation to the scheme
- accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested
- has the necessary governance / assurance arrangements in place
- has identified a procurement strategy that is legally compliant and is likely to achieve the best value for money outcome
- will ensure that a robust and effective stakeholder and communications plan is put in place

Name: Keith Abbott

Signed:



Submission of bids:

The deadline for bid submission is 5pm, **9 February 2015**

An electronic copy only of the bid including any supporting material should be submitted to:

roadmaintenance@dft.gsi.gov.uk copying in steve.berry@dft.gsi.gov.uk