

**Report of Director of City Development**

**Report to Executive Board**

**Date: 17 October 2018**

**Subject: Street Lighting Energy Saving Programme**

Are specific electoral wards affected? If yes, name(s) of ward(s):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are there implications for equality and diversity and cohesion and integration?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the decision eligible for call-in?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the report contain confidential or exempt information? If relevant, access to information procedure rule number: Appendix number:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

**Summary of main issues**

1. The street lighting energy saving programme supports the Council's ambition to be an efficient and enterprising organisation and contributes in particular to the Best City priority on 21<sup>st</sup>-Century Infrastructure as set out in the Best Council Plan 2018/19 – 2020/21.
2. The council currently spends around £4.8m per annum on electricity to run the City's street lights. Opportunities to reduce this annual cost are constantly sought.
3. Executive Board approved a programme of selective part-night operation of street lights in 2013. Since that time over 3,700 of the 92,000 street lights have been converted to switch off at midnight and back on at around 5:30am. The majority of these are in residential streets. Around 1,500 street lights have been converted to LED technology. These changes have reduced the energy costs by around £140,000 per annum
4. As LED technology has improved and becomes more efficient there is now a compelling case to invest in this technology across the majority of the street lighting stock at an estimated cost of £25.4m providing savings of £3.4m per annum at current energy prices.
5. Conversion of the majority of the lanterns to LED provides an opportunity to install remote monitoring and connectivity of street lights (CMS) to add Smart City capabilities at an estimated additional cost of £5m. This would bring the added benefit of increased energy savings in the region of £200,000 per annum, remote switching/dimming of lights and support the Council's Smart City programme.

**Recommendations**

6. Executive Board is requested to:
  - i. Consider and approve the business case to invest in the conversion of street lights to LED at an estimated cost of £25.4m.

- ii. Consider and approve the business case and additional benefits to invest in the addition of remote control (CMS) at an estimated additional cost of £5m. Subject to assurances from the CMS provider that the data collected can be made openly available to the council.
- iii. Inject £25.4m into the Capital Programme and grant approval to spend to deliver the conversion of 86,000 street lighting units to LED technology.
- iv. Inject an additional £5m into the Capital Programme and grant approval to spend to add 'Smart City' remote control (CMS).
- v. Grant approval to the Director of City Development to conclude the contractual changes required in the Street Lighting PFI contract (and agree any related or ancillary documents) and implement the conversion to LED street lighting with or without remote control.
- vi. Note that the Chief Officer Highways and Transportation will be responsible for implementation.

## **1. Purpose of this report**

1.1 The purpose of this report is to:

- i. Seek approval to design and implement a scheme to convert existing street lighting to LED technology.. A programme costing an estimated £25.4m over 4 years and resulting in estimated gross savings in energy and maintenance of £3.4m per annum and net savings of £29.78m over 20 years.
- ii. Seek approval to provide added benefit of incorporating 'Smart City' remote connectivity (CMS) to the street lights at the same time. Costing an additional £5m over 4 years and resulting in additional energy savings in the region of £200,000 per annum and opening up opportunities for city wide sensor and data capabilities.
- iii. Seek approval to conclude contract negotiations with the Street Lighting PFI provider and implement the conversion of street lights to LED technology.

## **2. Background information**

- 2.1 Leeds City Council has responsibility for around 92,000 street lights, which consume approximately £4.8m of energy per annum. The service is delivered through a Private Finance Initiative agreement with Tay Valley Lighting (Leeds) Limited (TVL). TVL are responsible for the maintenance and replacement of street lights in Leeds over the 25 year period of July 2006 to July 2031. The outcomes to be achieved during the contract include improved road safety and a reduction in the fear of crime. Any proposals to reduce energy requirements need to be balanced with the continuing ability of the lighting to meet these objectives.
- 2.2 In June 2013, Executive Board approved a spend-to-save initiative to convert up to 8,000 street lights to part-night operation (turned off between midnight and 5:30am) where it was considered appropriate to do so. 3,759 street lights have now been converted to part-night operation at a cost to the council of £159,800, saving energy costs averaging £136,000 per annum. There has been no direct evidence of an increase in crime or an adverse effect on road safety in areas where street lights have been converted to part-night operation.
- 2.3 In June 2017 Executive Board supported a public consultation to establish the views on the project so far and to inform next steps to exploring further energy savings. This consultation is now complete. The findings are summarised below and a comprehensive report is included at Appendix C to this report.
- 2.4 The service has reviewed the cost benefit of low energy LED lighting. The increasing efficiency of lanterns coupled with escalating energy prices now makes it attractive to invest in replacing significant numbers of lanterns with LED units. This report presents the detail of this preferred option to pursue long term energy and maintenance savings
- 2.5 Replacing the street lighting lanterns provides an opportunity to install smart lighting units that will facilitate the remote control of the street lights (allowing for greater energy savings). This will also provide connectivity to other sensors such as CCTV, air quality monitoring and other data uses. This connectivity comes at an extra cost which is further considered below.

### **3. Main issues**

- 3.1 Since the report to Executive Board in June 2017 a broader analysis of the costs and savings of converting the majority of the 92,000 lights across the district has been undertaken. TVL, the service provider has provided an outline business case that shows that the majority of standard lanterns (around 86,000 in number) could be converted to LED technology at a cost of £25.4m. This would result in annual energy savings in the region of £2.85m and as LED lighting requires less maintenance, further maintenance savings estimated at £0.57m per annum. A summary financial profile of this proposal is included in Appendix A.
- 3.2 The remaining 6,000 street lights are already included to be replaced by LED units within the PFI contract over the remaining term of the contract.
- 3.3 To develop the outline case into a workable investment requires a legal process to adjust the PFI obligations to reflect the difference in life cycle maintenance activities across the infrastructure and work with the supply chain to prepare for the potential delivery and exchange of around 90 lights every working day for a 4 year period.
- 3.4 Subject to approval of the recommendations in this report the Director of City Development will develop the final legal agreement between the council and the street lighting service provider and proceed with the conversion to LED. It is hoped to be able to complete the process to begin the conversion of lighting units in Summer 2019.

#### **Smart Lighting Units**

- 3.5 The change to LED lanterns provides an opportunity to add a computer controlled Central Management System (CMS). Such a system would provide optimum, real time remote control and monitoring of street lights with the added benefit of providing connectivity to a greater number of sensors and devices to provide a Smart City network wherever there is a street light.
- 3.6 The added benefit to street lighting control means that changes in policy around switching off, part-night switching, delayed switching or dimming can be implemented at no additional cost instantly and cheaply. Planned and reactive adjustments, due to events or incidents, will also become possible. The current system requires a visit to each lamp to alter its switching options and may require additional equipment to be fitted to each lamp. Furthermore, details relating to the operation of each street light will become available and may assist when dealing with accident claims, incident reviews and the like.
- 3.7 Leeds City Council's Smart Leeds programme is designed to deliver new innovative services and solutions which improve citizens' lives, promote Leeds as a city 'test bed' where innovation is embraced, and build on existing foundations which have made Leeds a city where people want to live, visit and work. The Smart Lighting programme will directly support this agenda through providing a city wide infrastructure and connectivity allowing a range of sensor based services to be developed. Potential applications include:
  - Improved property monitoring contributing to lower social housing repair costs
  - Road Temperature assessment leading to more effective gritting
  - Environmental monitoring including air quality and temperature

- Gully sensors leading to better flood alleviation
- A range of consumer health applications leading to reducing demand on social care and health services

Opportunities that the use of CMS and Smart Cities technology have presented elsewhere include:

- *Newport City Council; winter road surface temperature monitoring*
- *Halton Housing monitoring CO2, temperature and humidity in properties.*
- *Bristol City Council allowing companies to test new smart technologies in a real world environment through street lighting connectivity and other networks.*
- *Manchester City Council investing in 56,000 smart street lights to facilitate greater control of lighting energy and access to data from connected sensors.*

- 3.8 As the network is 'open' it will allow the digital sector of independent Developers and SMEs to create new innovative city wide solutions meeting major challenges and outcomes.
- 3.9 An essential aspect of connectivity deployed at this scale is access to the underpinning data. The Council will insist and want assurance that the data collected from sensors utilising the Smart Lighting CMS system is made openly available, near real time so that further applications and services can be built on top of it. The deployment will not progress if this assurance cannot be met.
- 3.10 A complete CMS system is estimated to cost around £5m for the whole of the street lighting network plus running costs of £92,000 per annum. The potential financial benefit to the authority and community is realised from lower management costs of the street lights (self-diagnosis, less need to inspect, more responsive repairs), greater energy savings from policy changes such as dimming (in the region of £200,000 per annum) and the unquantifiable benefit of connectivity to the increasing array of data sensors.
- 3.11 The change to LED lanterns will facilitate the addition of a CMS system at any time in the future. The estimated cost of £5m above assumes the installation at the time of exchanging the lanterns to LED. The fitting of the system as a separate operation will incur an additional cost of just under £1m.

### **Financial Plan**

- 3.12 Appendix A shows the anticipated profile of capital expenditure for each programme together with the net revenue cash inflows and outflows in respect of the prudential borrowing costs and savings in electricity/maintenance costs.
- 3.13 On completion of the programme, the LED conversion programme is expected to deliver energy savings of circa £2.85M per annum (equivalent to circa 60% of the budgeted electricity costs for the overall street lighting function)
- 3.14 Should the final business case meet with approval, the authority could take advantage of a proportion of the cost being met from interest free government backed funding through Salix Finance Limited (Salix). Salix will provide finance to the limit of the first five years energy savings. A specific technical case has been

submitted to Salix and on the basis of the resulting energy and carbon savings they have provisionally agreed to provide the full amount of funding for the conversion to LED.

- 3.15 Any move to LED lighting will require a formal change to the PFI agreement. The beneficiaries of any change mechanism is dependent on which party instigates the change and how it is financed. If the change is funded entirely by the council (even with the support of Salix) then all of the savings on energy and maintenance will be retained by the council.

### **LED lighting specification**

- 3.16 Some LED lighting can appear to be stark in nature, appearing to give off a whiter light than the current lighting systems. LED lights more readily represent daylight conditions.
- 3.17 There has been a lot of press coverage regarding the deployment of LED light sources, this has mainly been aimed at the public lighting sector and, despite the obvious energy benefits, it relates to 'concerns' over the potential effect of these light sources on people as well as fauna and flora. When considering the effect of public lighting on people a major reference document to consider is the 'Human responses to lighting based on LED solutions'. This was commissioned by the Chartered Institution of Building Services Engineers and the Society of Light and Lighting and was undertaken by Public Health England. The resulting report advises that in normal use at normal viewer distances and exposure times then there is no concern with regard to public LED lighting installations.
- 3.18 The white light has the benefit of increased vision and hence road safety but increased exposure to daylight conditions may have health concerns. How near artificial lighting is to daylight is measured by the Correlated Colour Temperature (CCT). On a clear day daylight has a temperature in excess of 6,000Kelvin (K). Generally, the standard LED offering used by most local authorities is 4,000K (neutral). Considering the guidance within the Public Health England Report, CCTs of around 4000K are likely to be more suitable for street lighting. The recommended CCT value for the lighting proposed in Leeds is 4,000K on Traffic routes for the maximum road safety where there is increased traffic interaction and 3,000K in residential streets where the risks are lower. Street lights of a CCT of 3000K consume slightly more energy than 4000K lights and whilst there is no evidence of 4000k being detrimental to health it is considered appropriate to deliver the softer light in the less busy residential streets.

## **4. Corporate considerations**

### **4.1 Consultation and engagement**

- 4.1.1 A formal public consultation on the options the Council is considering for the long term provision of street lighting in Leeds took place between 26 November 2017 and 26 January 2018. The full report is included at Appendix C to this report.
- 4.1.2 The options within the consultation included turning off more lights during the night, upgrading to more efficient LED lanterns, doing both, or making no changes. There were 2,106 responses submitted. This was an open public consultation. The demographic makeup was broadly in proportion to the Leeds population but

younger people (18 to 29) were underrepresented. The consultation gathered views on two options, a combination of both and some supplementary views. More than half (52.2%) of respondents preferred a combination of expansion of Part-Night lighting and conversion to LED lighting. Only 5.2% wanted no change to existing arrangements.

4.1.3 The consultation results support limited expansion of part-night lighting. This would have the benefit of increased energy savings but offers little scope for any significant increase in numbers and hence benefit in this approach. There is clearly concern for crime and the feeling of being 'less safe'. A limited increase in part-night operation alone is unlikely to meet the long term energy saving aspirations of the council and for this reason it is recommended not to extend part-night operation at this time. Part-night operation will be kept under review as part of the wider programme of energy savings.

4.1.4 The Executive Member for Regeneration, Transport and Planning has given support to explore further energy saving measures.

## **4.2 Equality and diversity / cohesion and integration**

4.2.1 An equality, diversity, cohesion and integration impact assessment is included at Appendix B within this report.

## **4.3 Council policies and best council plan**

4.3.1 Energy saving measures support the Council's ambition to be an efficient and enterprising organisation and contributes in particular to the Best City priority on 21<sup>st</sup>-Century Infrastructure as set out in the Best Council Plan 2018/19 – 2020/21.

4.3.2 The addition of remote lighting control and wireless connectivity included with a CMS system supports the Council's Smart City ambitions.

## **4.4 Resources and value for money**

4.4.1 The capital investment required to convert 86,000 street lights to LED over a 4 year time-scale is estimated at £25.4m with resultant saving in energy and maintenance costs post completion of circa £3.4m per annum.

4.4.2 The above savings are based on current budgeted tariffs, however, these tariffs are expected to come under increasing inflationary pressure. A £400K pressure on street lighting energy tariffs is already being forecast for 2018/19 with similar (if not greater) potential increases in energy costs expected over the medium to long term. The LED conversion programme will enable the council to significantly mitigate against these inflationary pressures.

4.4.3 It is estimated that the programme of LED conversion will deliver 100% payback on the £25.4M capital investment during the first quarter of the 2028/29 financial year (circa 5 years after the completion of the 4 year conversion programme)

4.4.4 The conversion of street lighting to LED can be funded from Salix Finance Ltd with nil percent interest repayments over the subsequent five year period. The funding is reserved for Leeds project should we wish to accept.

## **4.5 Legal implications, access to information, and call-in**

- 4.5.1 Under the current PFI agreement TVL have taken responsibility for all liabilities arising from the street lighting provision and apparatus. The proposal to alter the routine functioning of the lighting system will result in partial liabilities being returned to the council.
- 4.5.2 An amendment to the PFI specification to permit a large scale roll-out of LED lanterns will require a formal change to the contract. Such notice will take into consideration the legal and financial implications of the proposal such as changes to maintenance regimes, guarantee periods and design risk.
- 4.5.3 The energy saving cost estimates included within this report are based on energy charges at current tariff. All indications are that energy costs are likely to increase in future, making a more positive case to invest.
- 4.5.4 The decision of Executive Board in relation to the recommendations is subject to call-in.

## **4.6 Risk management**

- 4.6.1 The selection of any street lights previously converted to part-night operation is controlled by selection criteria and on-site risk assessment to manage the potential impact on fear of crime and road safety.
- 4.6.2 The outcome of the measures so far taken has been monitored and to date there has been no direct evidence of any negative impact on crime and road safety.
- 4.6.3 Contractual changes to the PFI agreement to facilitate large scale use of LED lanterns will be protected by a formal change notice. There will be limited changes to the risk allocation, particularly during the 4-year installation period and in relation to lifecycle to the extent that the LED change directly impacts on service delivery. The approval of Department for Transport/HM Treasury will be obtained before any changes to the PFI contract are agreed or implemented.
- 4.6.4 A formal certification process for signing-off the installation of the LED lanterns will be incorporated to ensure that the LED lanterns are of satisfactory quality.
- 4.6.5 The estimated savings within this proposal are based on current energy rates. This is considered to be conservative and any future increase in energy prices will result in a greater avoidance of expenditure noted here.
- 4.6.6 Dialogue is on-going with TVL, however, TVL have indicated that they wish to seek to resolve a number of unrelated contractual disputes as part of this dialogue. Whilst the Council have stated a willingness to discuss these disputes separately, we have confirmed that they should not prevent the progression of any LED related contract

change. If we are unable to agree how best to move forward on these unrelated disputes, it could delay agreement relating to the LED formal contract change to the PFI agreement and therefore the start of works on site.

## **5. Conclusions**

5.1 In excess of 3,700 street lights have been converted to part-night operation since 2013 at a cost of £159,800, saving the council around £136,000 per annum. There is an opportunity to convert 86,000 street lights to LED lanterns at a cost of £25.4m. There is an option to add a CMS system that will facilitate greater control of the lighting and offer Smart City connectivity at an estimated additional cost of £5m. A public consultation has taken place to gather views on the existing energy saving measures and the potential to make further savings. The views expressed support limited increase in part-night lighting and conversion to more efficient LED lanterns. The conversion to LED offers greater savings but higher investment costs. Expansion of part-night lighting alone is unlikely to make savings in line with council aspirations. This report recommends the LED option subject to agreement with the PFI provider which is not expected to be unreasonably withheld. The conversion to LED could commence in Summer 2019 and is expected to take 4 years to complete.

## **6. Recommendations**

6.1 Executive Board is requested to:

- i. Consider and approve the business case to invest in the conversion of street lights to LED at an estimated cost of £25.4m.
- ii. Consider and approve the business case and additional benefits to invest in the conversion of street lights to LED with remote control (CMS) at an estimated additional cost of £5m. Subject to assurances from the CMS provider that the data collected can be made openly available to the council.
- iii. Inject £25.4m into the Capital Programme and grant approval to spend to deliver the conversion of 86,000 street lighting units to LED technology.
- iv. Inject an additional £5m into the Capital Programme and grant approval to spend to add 'Smart City' remote control (CMS).
- v. Grant approval to the Director of City Development to conclude the contractual changes required in the Street Lighting PFI contract (and agree any related or ancillary documents) and implement the conversion to LED street lighting with or without remote control.
- vi. Note that the Chief Officer Highways and Transportation will be responsible for implementation.

## **7. Background documents<sup>1</sup>**

7.1 None.

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<sup>1</sup> The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.



# Street Lighting Energy Saving Programme – Provisional Financial Plan Appendix A Conversion to LED (with and without Central Monitoring System)

## STREET LIGHTING - CONVERSION TO LED - PRUDENTIAL BORROWING BUSINESS CASE (DRAFT) - Excluding Central Monitoring System

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total		
<b>Programme Costs (Capital)</b>	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39			
(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	
<b>Total Programme Costs</b>	7.88	8.25	4.59	4.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.43	
<b>Prudential Borrowing Repayments</b>																							
<b>Total Prudential Borrowing Costs</b>	0.55	1.13	1.45	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	32.75
<b>Savings</b>																							
Energy	(0.79)	(1.39)	(2.21)	(2.42)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(2.85)	(52.41)
Maintenance	(0.06)	(0.17)	(0.35)	(0.42)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(10.12)
<b>Sub-Total Savings</b>	(0.85)	(1.56)	(2.56)	(2.84)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(3.42)	(62.53)
<b>Net Cashflow</b>	(0.30)	(0.43)	(1.11)	(1.06)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(1.64)	(29.78)

Assume 4 year programme commencing 1st April 2019 - 86,000 lanterns to be replaced (21,500 per annum commencing 1/4/19)  
 Prudential borrowing costs based on an interest rate of 3% over a useful asset life of 19 years  
 Energy savings - assume £2.85m on completion of all 4 phases (86,000 lights)  
 Maintenance savings - £0.57M on completion of all 4 phases

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
<b>Net Cash Flow</b>	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39		
(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)
<b>Discounted Cash Flow (using a DF of 3.5%)</b>	(0.30)	(0.42)	(1.04)	(0.96)	(1.43)	(1.38)	(1.34)	(1.29)	(1.25)	(1.21)	(1.17)	(1.13)	(1.09)	(1.05)	(1.02)	(0.98)	(0.95)	(0.92)	(0.89)	(0.89)	(1.14)	(20.95)
<b>Discount Factor (3.5%)</b>	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520		

## STREET LIGHTING - CONVERSION TO LED - PRUDENTIAL BORROWING BUSINESS CASE (DRAFT) - including Central Monitoring System

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total		
<b>Programme Costs (Capital)</b>	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39			
(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	
<b>Total Programme Costs</b>	8.70	9.34	6.14	6.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.44	
<b>Prudential Borrowing Repayments</b>																							
<b>Total Prudential Borrowing Costs</b>	0.61	1.26	1.69	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	39.07	
<b>Savings</b>																							
Energy	(0.84)	(1.49)	(2.37)	(2.59)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(3.05)	(56.09)
Maintenance	(0.04)	(0.13)	(0.28)	(0.34)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(8.47)
<b>Sub-Total Savings</b>	(0.88)	(1.62)	(2.65)	(2.93)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(3.53)	(64.56)
<b>Net Cashflow</b>	(0.27)	(0.36)	(0.96)	(0.81)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(25.49)

Assume 4 year programme commencing 1st April 2019 - 86,000 lanterns to be replaced (21,500 per annum commencing 1/4/19)  
 Prudential borrowing costs based on an interest rate of 3% over a useful asset life of 19 years  
 Energy savings - assume £2.85m on completion of all 4 phases (86,000 lights)  
 Maintenance savings - £0.57M on completion of all 4 phases

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
<b>Net Cash Flow</b>	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39		
(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)	(EM)
<b>Discounted Cash Flow (using a DF of 3.5%)</b>	(0.27)	(0.36)	(0.96)	(0.81)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(1.41)	(25.49)
<b>Discount Factor (3.5%)</b>	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520		

Equality, Diversity, Cohesion and Integration Screening



As a public authority we need to ensure that all our strategies, policies, service and functions, both current and proposed have given proper consideration to equality, diversity, cohesion and integration.

A **screening** process can help judge relevance and provides a record of both the **process** and **decision**. Screening should be a short, sharp exercise that determines relevance for all new and revised strategies, policies, services and functions. Completed at the earliest opportunity it will help to determine:

- the relevance of proposals and decisions to equality, diversity, cohesion and integration.
- whether or not equality, diversity, cohesion and integration is being or has already been considered, and
- whether or not it is necessary to carry out an impact assessment.

<b>Directorate: City Development</b>	<b>Service area: Highways and Transportation</b>
<b>Lead person: Ian Moore</b>	<b>Contact number: 0113 3853120</b>

<b>1. Title: Street Lighting Energy Saving Programme</b>			
Is this a:			
<input type="checkbox"/>	<b>Strategy / Policy</b>	<input checked="" type="checkbox"/>	<b>Service / Function</b>
<input type="checkbox"/>		<input type="checkbox"/>	<b>Other</b>
<b>If other, please specify</b>			

<b>2. Please provide a brief description of what you are screening</b>
<p>Leeds City Council operates around 92,000 street lights, which used approximately £4.8million of energy during 2018/19. The service is already providing significant efficiencies in energy consumption through the use of low energy lamps and new lantern technology however, due to recent increases in the financial and environmental cost of electrical energy and the need to seek efficiencies across the provision of all council services, an exploration of ways to further reduce street lighting energy is required.</p> <p>This EIA assesses the impact of the proposals set out in the Report of the Director of City Development, entitled Street Lighting Energy Saving Programme</p>

### 3. Relevance to equality, diversity, cohesion and integration

All the council's strategies and policies, service and functions affect service users, employees or the wider community – city wide or more local. These will also have a greater or lesser relevance to equality, diversity, cohesion and integration.

The following questions will help you to identify how relevant your proposals are.

When considering these questions think about age, carers, disability, gender reassignment, race, religion or belief, sex, sexual orientation. Also those areas that impact on or relate to equality: tackling poverty and improving health and well-being.

Questions	Yes	No
Is there an existing or likely differential impact for the different equality characteristics?		X
Have there been or likely to be any public concerns about the policy or proposal?		X
Could the proposal affect how our services, commissioning or procurement activities are organised, provided, located and by whom?		X
Could the proposal affect our workforce or employment practices?		X
Does the proposal involve or will it have an impact on <ul style="list-style-type: none"><li>• Eliminating unlawful discrimination, victimisation and harassment</li><li>• Advancing equality of opportunity</li><li>• Fostering good relations</li></ul>		X

If you have answered **no** to the questions above please complete **sections 6 and 7**

If you have answered **yes** to any of the above and;

- Believe you have already considered the impact on equality, diversity, cohesion and integration within your proposal please go to **section 4**.
- Are not already considering the impact on equality, diversity, cohesion and integration within your proposal please go to **section 5**.

<b>4. Considering the impact on equality, diversity, cohesion and integration</b>
If you can demonstrate you have considered how your proposals impact on equality, diversity, cohesion and integration you have carried out an impact assessment.  Please provide specific details for all three areas below (use the prompts for guidance).
<ul style="list-style-type: none"> <li>• <b>How have you considered equality, diversity, cohesion and integration?</b> (<b>think about</b> the scope of the proposal, who is likely to be affected, equality related information, gaps in information and plans to address, consultation and engagement activities (taken place or planned) with those likely to be affected)</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Key findings</b> (<b>think about</b> any potential positive and negative impact on different equality characteristics, potential to promote strong and positive relationships between groups, potential to bring groups/communities into increased contact with each other, perception that the proposal could benefit one group at the expense of another)</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Actions</b> (<b>think about</b> how you will promote positive impact and remove/ reduce negative impact)</li> </ul>

<b>5. If you are <b>not</b> already considering the impact on equality, diversity, cohesion and integration you <b>will need to carry out an impact assessment.</b></b>	
Date to scope and plan your impact assessment:	
Date to complete your impact assessment	
Lead person for your impact assessment (Include name and job title)	

<b>6. Governance, ownership and approval</b>		
Please state here who has approved the actions and outcomes of the screening		
<b>Name</b>	<b>Job title</b>	<b>Date</b>
Andrew Molyneux	Head of Highways Infrastructure	5 September 2018
<b>Date screening completed</b>		5 September 2018

## 7. Publishing

Though **all** key decisions are required to give due regard to equality the council **only** publishes those related to **Executive Board, Full Council, Key Delegated Decisions** or a **Significant Operational Decision**.

A copy of this equality screening should be attached as an appendix to the decision making report:

- Governance Services will publish those relating to Executive Board and Full Council.
- The appropriate directorate will publish those relating to Delegated Decisions and Significant Operational Decisions.
- A copy of all other equality screenings that are not to be published should be sent to [equalityteam@leeds.gov.uk](mailto:equalityteam@leeds.gov.uk) for record.

Complete the appropriate section below with the date the report and attached screening was sent:

For Executive Board or Full Council – sent to <b>Governance Services</b>	Date sent:
For Delegated Decisions or Significant Operational Decisions – sent to appropriate <b>Directorate</b>	Date sent:
All other decisions – sent to <a href="mailto:equalityteam@leeds.gov.uk">equalityteam@leeds.gov.uk</a>	Date sent: