

## Report of the Strategic Director of Place to the meeting of Bradford West to be held on 17<sup>th</sup> March 2021

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### **Subject:**

**THE SMART STREET LIGHTING PROJECT UPDATE TO AREA COMMITTEE ON  
PROGRESS AND SCHEDULE**

### **Summary statement:**

The following report has been produced to provide Members with a progress report of the Smart Street Lighting Project to date. It will also explain some of the processes and activities to come and provide details of the significant benefits expected to be realised to the District as a result of this project.

### **EQUALITY & DIVERSITY:**

Equality Impact Assessment attached in Appendix C

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**Portfolio:**  
**Regeneration, Planning and Transport**

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**Overview & Scrutiny Area:**  
**Regeneration and Environment**

## 1. SUMMARY

This report has been produced to provide Members with a progress report of the Smart Street Lighting Project (SSL) to date. It will also explain some of the processes and activities to come and provide details of the significant benefits expected to be realised to the District as a result of this project. In addition, to assist members with information regards their individual ward areas, Appendix 4 provides ward/area specific data.

## 2. BACKGROUND

The Council approved an invest to save investment of £45m to enhance its current lighting stock, of approximately 56,500 assets, with the aim of significantly reducing energy usage, maintenance costs and also reducing carbon outputs. The Council will replace the existing inefficient lighting with more energy efficient LED's whilst retaining most of the existing lighting columns, it is envisaged that there will be a need for the replacement of approximately 15,600 life expired lighting columns. The new lighting solution will be controlled using a Central Management System (CMS) via a Low power wide area network (LoRaWAN) thus providing a platform for Internet of Things (IoT) for connectivity.

The vast majority of the Works (48,300 assets in scope) will be carried out via an 'External Contractor', who will commence with the survey of all the existing street lighting assets within the District, including a column condition inspection to determine structural suitability. The results from the survey will assist the Council to identify what upgrade works are required for each lighting asset, giving them full control in generating the SSL Project's operational work scope.

In addition to the 'In Scope' works of the project, the Council, using their in-house operational teams (DLO) will upgrade approximately 7,247 assets over the life of the project. These works are defined as 'Out of Scope' and include asset upgrades that in general take longer to install given their location and structure. Examples of such include, heritage street lighting assets and wall mounted units.

### **Business Case reference document:**

*'Street Lighting LED Project – 'Invest to Save' – 1147ZC-ocs-001-K\_Buisness Case' dated 5th November 2018* was reviewed by Overview and Scrutiny (O&S), approved by the Policy Approved Group (PAG), and signed by the Executive Board 5<sup>th</sup> February 2019.

## 3. OTHER CONSIDERATIONS

➤ None identified

## 4. FINANCIAL & RESOURCE APPRAISAL

4.1. There are no financial issues arising from this project to date. The funding was agreed by PAG and is split between

£ 25,893,509 of Prudential borrowing  
£ 19,084,597 of SALIX interest free Government funding (for carbon reduction projects).

The Works will be delivered by both, external contractors and in-house operatives over a four-year period. The responsibilities and costs are defined in the table below:

Item	Work Type	Responsibility	Contract Value (£)
1	In Scope Works	AMEY OW Limited	<b>37,000,000.00</b>
2	Out of Scope Works	CBMDC Operatives (DLO)	<b>4,958,303.86</b>
3	Project Management and Delivery	Overseeing Organisation	<b>3,019,802.22</b>
<b>Total (£)</b>			<b>44,978,106.08</b>

## 4.2 SOCIAL VALUE INVESTMENT

The delivery contractor for the SSL Project, Amey OW Ltd, have pledged through the contract process to contribute benefits in the region of **£3.8M** by achieving the following targets;

- 3% of total contract expenditure in the local supply chain.
- Active communities - promoting inclusive employment, education and skill development for employees and the wider public.
- Encourage inclusive social economic and environmental benefit targets- eg 'Buy Social
- Corporate Challenge', which collectively aims to spend one-billion pounds with social enterprises as part of the challenge.
- Keeping the Bradford pound within Bradford, the contractor aims to apply this within Bradford and commit to investing locally, recruiting personnel, purchasing material and plant, and obtaining maintenance services from the local area; supporting the economic growth and economy of the city.
- Create 10 traineeships and, or apprenticeships for Bradford local residents.
- Earn and learn graduate and apprenticeship programmes and enabling existing employees to gain new qualifications. Providing a minimum of ten traineeships and apprenticeships (five of each) over the duration of the contract; ensuring recruitment is carried out directly from within the Bradford area using Hays Recruitment based in the City.
- Each employee under 23½ years old is encouraged to enrol on the Duke of Edinburgh's (DofE) Gold Business Award.
- Five traineeships for Bradford resident aged 16 to 24 years of age. The traineeships will be up to six months in duration and will provide the individuals high-quality work experience placements and work preparation training.

The auditing and monitoring of social value benefits is carried out by an external

agency called The Social Value Portal, initiated by central government, to ensure robust scrutiny and delivery of commitments by contractors. (Reports from the Social Value Portal are received on a quarterly basis).

## **5. RISK MANAGEMENT AND GOVERNANCE ISSUES**

There are numerous risks associated with the delivery of such a large district scheme. The project is being managed under an NEC Project Management system with clear and robust processes in place to manage the two contracts and maintain scope in terms of time, cost and resource. Risks range from short term management of health and safety e.g. operatives currently working under Covid-19 key worker conditions, to managing the removal of unsafe columns where poor structural condition has been identified. Beyond the day to day risk and issue management, the greatest risk to the council as a whole is scope creep, which could occur via;

- A) a range of issues leading to delay in LED replacements resulting in energy savings not being achieved by key dates.
- B) escalating costs beyond budget, resulting in unaffordable loan repayments.

Either of which cause of scope creep could lead to diminished energy cost reductions jeopardising the timely repayment of the loans leading to additional interest payments.

## **6. LEGAL APPRAISAL**

- No additional legal issues.

## **7. OTHER IMPLICATIONS – COMMUNICATIONS**

The Smart Street Lighting project has many benefits to the residents and visitors of Bradford and it is very important that the positive aspects are shared and celebrated.

To this end we have set up a Smart Street Lighting webpage and designated email address for enquiries. There will be a press release at the commencement of installation works (March/April period) to mark the first installation of the energy saving LEDs. It is also planned that Ki central management system will provide up to date information of energy savings lantern by lantern which will enable regular reporting of energy savings and carbon usage reductions.

There are intentions to have a Smart Street Lighting page on the Bradford App. Once installed the schedule of installations can be push-notified to residents together with updates on the carbon reduction figures. In the meantime, schedules will be updated on the Smart Street Lighting webpage.

Finally, prior to installations there will be letter drops to advise residents of imminent works along their street to avoid any inconvenience and advise of the need to move

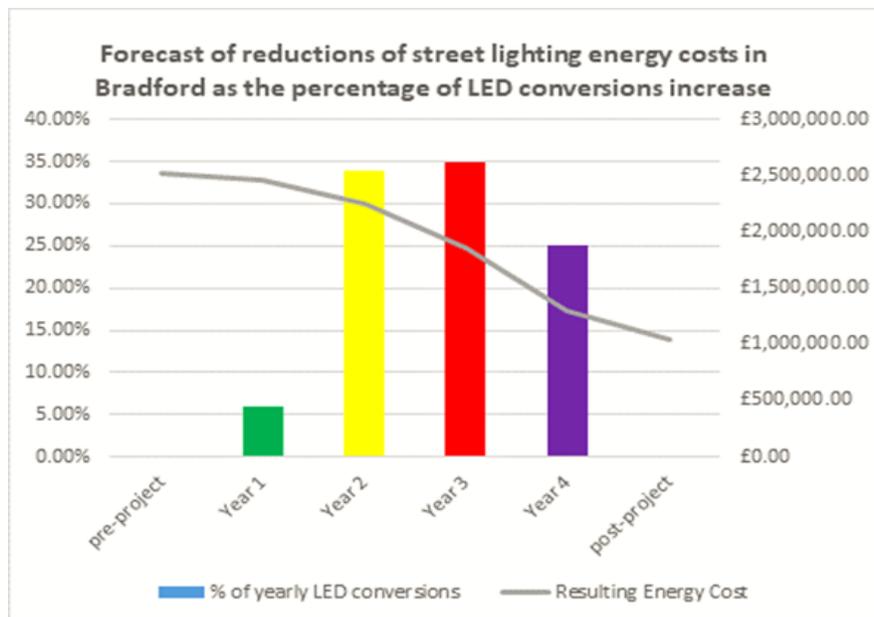
cars if they are on-street parked next to columns.

## 7.1 SUSTAINABILITY IMPLICATIONS

- The Smart Street Lighting Project forms part of the 'Bradford Big 5' in terms of carbon reduction targets which form part of the Sustainability Development Action Plan.
- The projects Central Management System (CMS) infrastructure will enable future projects to utilise Internet of things technologies (IoT), the possibilities of which are being investigated via our IT services with potential collaborations with West Yorkshire Combined Authority.
- The replacement of up to a third of the districts columns together with all new LED lanterns provides assurances in regards to the future safety and provision of a fit for purpose district street lighting network for decades to come.

## 7.2 GREENHOUSE GAS EMISSIONS IMPACTS

The project expects to achieve 65% energy savings from the LED conversions, which will be something in the region of 6000 tonnes of carbon reductions per annum on project completion, However, switching to LED lighting alone is not enough to maximise energy reduction. Adaptive, interoperable lighting solutions are needed to bring savings to the next level, facilitated by connecting LED bulbs with a central management system (CMS) over the internet. These networked street lighting systems allow operators to monitor and regulate light levels in unprecedented ways, resulting in increased energy savings and lower operational costs. The energy savings that are realised by switching to LEDs could increase to 80-85% when connectivity and a central management system (CMS) are added.



It is estimated by the completion of the project in 2024 the annual energy cost burden to Bradford's budget will have reduced by approx. £1.5M and over the long-term 50 year forecast calculations, this will save over £180M in energy costs to the council.

### **7.3 COMMUNITY SAFETY IMPLICATIONS**

- Good street lighting has long been associated with crime reduction and road safety. Bradford's district lighting has been in want of large investment in terms of reducing the burden of energy costs to the council and ensuring safe, reliable and efficient streetlight provision for the future.
- A full streetlight asset survey commenced in September 2020. It is the first of its kind in many years. Using a number of inspection methods including electrical testing and non-destructive tests, intelligence of the structural and electrical condition of our streetlights, columns and cabling is being gathered to inform the design and installations. As a result of the survey results, a number of columns have been identified as having serious structural condition and have had to be cut down. This represents less than 1% of assets surveyed. It is anticipated, approximately 30% of all assets, will be receiving replacement columns across the district at the time of installations.
- Emergency cut-downs are unforeseen and create a lag in time between removal and installation. The Cut Down Replacement protocol was devised to provide a partial solution to alleviate the problems and risks of severely darkened areas created by the emergency works, whilst ensuring the costs and scope of the project are not seriously compromised. The protocol aims to replace all streetlamps where two or more adjacent assets have been cut down and was approved as a means to ensure these commitments to replace assets were affordable in all wards, particularly as some wards will not receive installations for 2-3 years after the survey period and so potentially could have cut down lampposts for that duration.

### **7.4 HUMAN RIGHTS ACT**

- There are no Human Rights implications

### **7.5 TRADE UNION**

- There are no trade union implications.

### **7.6 WARD IMPLICATIONS**

- Specific information of survey dates or surveys completed plus any emergency cut down works and replacements fitted or awaiting installation. (see Appendix 4)

### **7.7 AREA COMMITTEE ACTION PLAN IMPLICATIONS (for reports to Area Committees only)**

- None identified

## **7.8 IMPLICATIONS FOR CORPORATE PARENTING**

No implications.

## **7.9 ISSUES ARISING FROM PRIVACY IMPACT ASSESMENT**

There are no impacts regards GDPR or Data Protection. Information held and disseminated is in regards to assets only and not attributed to individuals. Any complaints received will be handled in accordance with the current Corporate complaints process.

## **8. NOT FOR PUBLICATION DOCUMENTS**

- None

## **9. OPTIONS**

- This report is a means to provide information to the committee and there are no options requiring decision at this time.

## **10. RECOMMENDATIONS**

Members acknowledge the progress of the Smart Street Lighting project and welcome annual updates.

Members endorse the project as a positive investment across the Bradford District bringing significant benefits overall.

## **11. APPENDICES**

- Appendix A - Surveys undertaken and schedule of dates of surveys to follow.
- Appendix B - Outline schedule of installations by ward
- Appendix C - Equality Impact Assessment
- Appendix D - Specific Ward Data

If there is confidential information that falls under Schedule 12A of the Local Government Act 1972, try to contain this within an appendix.

## Surveys undertaken and schedule of dates of surveys to follow

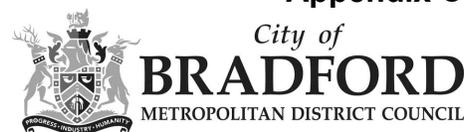
<b>Week No.</b>	<b>Dates (WC)</b>	<b>Work Type</b>	<b>Area</b>
5	28/09/2020	Survey	Bowling & Barkerend
6	05/10/2020	Survey	Bowling & Barkerend
7	12/10/2020	Survey	Bowling & Barkerend
8	19/10/2020	Survey	Wyke
9	26/10/2020	Survey	Wyke, & Wibsey
10	02/11/2020	Survey	Wyke, Wibsey & Queens
11	09/11/2020	Survey	Wibsey, Queensbury, Royds
12	16/11/2020	Survey	Fairweather Green
13	23/11/2020	Survey	Fairweather Green - Great Horton
14	30/11/2020	Survey	Bradford Moor
15	07/12/2020	Survey	City Centre
16	14/12/2020	Survey	City Centre - Eccleshill
17	21/12/2020	Survey	Bolton And Undercliffe
18	28/12/2020	Survey	Xmas Break
19	04/01/2021	Survey	Bolton And Undercliffe
20	11/01/2021	Survey	Toller
21	18/01/2021	Survey	Thornton And Allerton
22	25/01/2021	Survey	Thornton And Allerton, Heaton
23	01/02/2021	Survey	Windhill And Wrose
24	08/02/2021	Survey	Windhill And Wrose, Idle And Thackley
25	15/02/2021	Survey	Idle And Thackley
26	22/02/2021	Survey	Baildon
27	01/03/2021	Survey	Baildon
28	08/03/2021	Survey	Shipley
29	15/03/2021	Survey	Shipley
30	22/03/2021	Survey	Bingley

Installation Programmed dates (as at 2<sup>nd</sup> March 2021)

Task Name	Duration	Start	Finish
<b>Tong</b>	<b>30 days</b>	<b>Tue 23/03/21</b>	<b>Mon 03/05/21</b>
<b>Bowling &amp; Barkerend</b>	<b>30 days</b>	<b>Tue 27/04/21</b>	<b>Mon 07/06/21</b>
<b>Little Horton</b>	<b>30 days</b>	<b>Tue 01/06/21</b>	<b>Mon 12/07/21</b>
<b>Wibsey</b>	<b>30 days</b>	<b>Tue 06/07/21</b>	<b>Mon 16/08/21</b>
<b>Wyke</b>	<b>30 days</b>	<b>Tue 10/08/21</b>	<b>Mon 20/09/21</b>
<b>Royds</b>	<b>30 days</b>	<b>Tue 14/09/21</b>	<b>Mon 25/10/21</b>
<b>Queensbury</b>	<b>30 days</b>	<b>Tue 19/10/21</b>	<b>Mon 29/11/21</b>
<b>Clayton &amp; Fairweather</b>	<b>30 days</b>	<b>Tue 23/11/21</b>	<b>Mon 17/01/22</b>
<b>Great Horton</b>	<b>30 days</b>	<b>Tue 11/01/22</b>	<b>Mon 21/02/22</b>
<b>City</b>	<b>30 days</b>	<b>Tue 15/02/22</b>	<b>Mon 28/03/22</b>
<b>Bradford Moor</b>	<b>30 days</b>	<b>Tue 22/03/22</b>	<b>Mon 02/05/22</b>
<b>Eccleshill</b>	<b>30 days</b>	<b>Tue 26/04/22</b>	<b>Mon 06/06/22</b>
<b>Bolton &amp; Undercliffe</b>	<b>30 days</b>	<b>Tue 31/05/22</b>	<b>Mon 11/07/22</b>
<b>Manningham</b>	<b>30 days</b>	<b>Tue 05/07/22</b>	<b>Mon 15/08/22</b>
<b>Toller</b>	<b>30 days</b>	<b>Tue 09/08/22</b>	<b>Mon 19/09/22</b>
<b>Thornton &amp; Allerton</b>	<b>30 days</b>	<b>Tue 13/09/22</b>	<b>Mon 24/10/22</b>
<b>Heaton</b>	<b>30 days</b>	<b>Tue 18/10/22</b>	<b>Mon 28/11/22</b>
<b>Windhill &amp; Wrose</b>	<b>30 days</b>	<b>Tue 22/11/22</b>	<b>Mon 16/01/23</b>
<b>Idle &amp; Thackley</b>	<b>30 days</b>	<b>Tue 10/01/23</b>	<b>Mon 20/02/23</b>
<b>Baildon</b>	<b>30 days</b>	<b>Tue 14/02/23</b>	<b>Mon 27/03/23</b>
<b>Shipley</b>	<b>30 days</b>	<b>Tue 21/03/23</b>	<b>Mon 01/05/23</b>
<b>Bingley</b>	<b>30 days</b>	<b>Tue 25/04/23</b>	<b>Mon 05/06/23</b>
<b>Keighley East</b>	<b>30 days</b>	<b>Tue 30/05/23</b>	<b>Mon 10/07/23</b>
<b>Keighley Central</b>	<b>30 days</b>	<b>Tue 04/07/23</b>	<b>Mon 14/08/23</b>
<b>Keighley West</b>	<b>30 days</b>	<b>Tue 08/08/23</b>	<b>Mon 18/09/23</b>
<b>Wharfedale</b>	<b>30 days</b>	<b>Tue 12/09/23</b>	<b>Mon 23/10/23</b>
<b>Ilkley</b>	<b>30 days</b>	<b>Tue 17/10/23</b>	<b>Mon 27/11/23</b>
<b>Craven</b>	<b>30 days</b>	<b>Tue 21/11/23</b>	<b>Mon 15/01/24</b>
<b>Worth</b>	<b>30 days</b>	<b>Tue 09/01/24</b>	<b>Mon 19/02/24</b>
<b>Bingley Rural</b>	<b>25 days</b>	<b>Tue 13/02/24</b>	<b>Mon 18/03/24</b>

## Equality Impact Assessment Form

Reference EIA1SSL



<b>Department</b>	Place	<b>Version no</b>	2.0
<b>Assessed by</b>	Place Board / Corp PMO	<b>Date created</b>	1/7/2019
<b>Approved by</b>	Stephen Hartley	<b>Date approved</b>	14/7/2019
<b>Updated by</b>	Clare Adamson	<b>Date updated</b>	16/04/2020
<b>Final approval</b>	Richard Gelder	<b>Date signed off</b>	17/07/2020

The Equality Act 2010 requires the Council to have due regard to the need to

- eliminate unlawful discrimination, harassment and victimisation;
- advance equality of opportunity between different groups; and
- foster good relations between different groups

## Section 1: What is being assessed?

### 1.1 Name of proposal to be assessed.

#### **SMART STREET LIGHTING PROJECT**

### 1.2 Describe the proposal under assessment and what change it would result in if implemented.

A Smart Street Lighting 4-year district-wide programme which aims to oversee the replacement of approximately 15,600 lighting columns and circa 56,000 lamps to LED. This programme will provide significant energy consumption reductions by 65% on average resulting in both a decrease in energy bills and maintenance costs for the authority; plus, a significant reduction to the carbon footprint has long term environmental benefits.

The programme also provides essential upgrading of aging and obsolete assets. (luminaires, lamps & columns) to ensure they will endure and be safe in years to come.

As a replacement and upgrade project, there is very little change to the existing service provision. However, there are some variables to be considered, for example light, colour rendition, intensity and possible changes to hours of lighting / burning.

## Section 2: What the impact of the proposal is likely to be

- 2.1 Will this proposal advance equality of opportunity for people who share a protected characteristic and/or foster good relations between people who share a protected characteristic and those that do not? If yes, please explain further.**

There are a number of social value benefits (detailed in the contract document) which will positively impact Bradford residents, some of which will be from those protected characteristics groups. Further details will be available post contract award.

- 2.2 Will this proposal have a positive impact and help to eliminate discrimination and harassment against, or the victimisation of people who share a protected characteristic? If yes, please explain further.**

There are a number of social value benefits (detailed in the contract document) which have potentially significant positive impacts on Bradford residents with protected characteristics. However, quantifiable evidence of how these can help eliminate or reduce discrimination for people of protected characteristics is unknown and unmeasurable but within a number of the initiatives e.g. youth traineeships, there is the potential to change lives for the better.

- 2.3 Will this proposal potentially have a negative or disproportionate impact on people who share a protected characteristic? If yes, please explain further.**

No

- 2.4 Please indicate the level of negative impact on each of the protected characteristics?**  
(Please indicate high (H), medium (M), low (L), no effect (N) for each)

Protected Characteristics:	Impact
Age	N
Disability	L
Gender reassignment	N
Race	N
Religion/Belief	N
Pregnancy and maternity	N
Sexual Orientation	N
Sex	N
Marriage and civil partnership	N
<b>Additional Consideration:</b>	

Low income/low wage	N
Data protection /personal information	L

## 2.5 How could the disproportionate negative impacts be mitigated or eliminated?

(Note: Legislation and best practice require mitigations to be considered, but need only be put in place if it is possible.)

The impact to service users with sight disabilities is relatively unknown. Potentially the LED white light can improve visibility at night and creates less diffused light than its yellow sodium light predecessor. However, some concerns have been raised regards sensitivities to light, particularly from the blue area of the spectrum. These concerns were fed into the specifications of the contract, the choice of brightness, intensity and colour has been carefully considered within the process to ensure levels are not potentially harmful or polluting to both humans and / or animals.

LED lighting is expected to improve visibility for road users.

Part-night dimming or switch off is possible with the smart technology of a Central Management System (CMS) system

A review of the potential positive and negative impacts of part night dimming or total switch off of street lights in the early morning hours will be undertaken to identify hot spots (areas to avoid – due to potential crime or accidents) and green spots (areas of rural and residential where dimming or switch off may be beneficial) should the Council require further energy savings.

Data Protection and held data is a growing concern. With the introduction of smart connected technologies and the potential for the obtaining, storing and handling of massive amounts of data it is vital that security systems ensure these are not breached and more importantly that as information and data collection becomes more intelligent and varied in its potential that the information is not invasive and is anonymised.

## Section 3: Dependencies from other proposals

- 3.1 Highways services, permits and works, Transport Plan.  
 Climate Change and Sustainability  
 Social Value  
 WYCA Carbon reduction programme  
 IT / Digital Lora WAN network and Internet of things (IoT ) proposals

## Emergency services – eg Police and Ambulance - crime risk areas, accident hot spots, Section 4: What evidence you have used?

### 4.1 What evidence do you hold to back up this assessment?

The project is an updating of a current service. The justification is unnecessary.

The choice of lamp is supported by Health England Report.

#### **4.2 Do you need further evidence?**

In terms of impacts of lighting, LED Lighting with CMS capabilities across networks and districts is still in its infancy. Blue short wave light (high Kelvin temperature over 3000K) avoidance is known and documented. The negative impact to biodiversity of all night lighting has been researched by various agencies in the UK. In contrast part-night switch off and dimming schedules has more positive evidence from research in terms of impacts to residents, flora and fauna, in numerous research papers. However, the conclusions of much of the research is based on particular small research samples and more substantive information should be considered in terms of part-night switch off and dimming regimes at such a time as there is more available.

It is recommended that in advance of additional smart technology projects being enabled by the CMS infrastructure (not part of this project scope) that these are properly researched in terms of data maintenance and security before introduction.

### **Section 5: Consultation Feedback**

#### **5.1 Results from any previous consultations prior to the proposal development.**

Traffic and Emergency services incident (accident and crime) hot spots feedback and data

There has been no formal public consultation regards the replacement of district wide street lighting assets. The Smart Street Lighting project is a modernisation and replacement programme of aging and obsolete assets. Street lighting is not a statutory service.

However, advice was sought with Public Health England regards conclusive research findings on the impacts to public health of LED lighting.

Results of public consultation from surrounding authorities (including Leeds) was used to inform material specifications.

A series of press releases, web communications and briefings have been released advising of various aspects of the project.