

**19 November 2019**



**Street Lighting Energy Reduction  
Project**

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**Joint report of Lorraine O'Donnell, Director of Transformation and Partnerships, and Ian Thompson, Corporate Director of Regeneration and Local Services**

**Electoral division(s) affected:**

Countywide.

**Purpose of the Report**

- 1 To provide Members of the Environment & Sustainable Communities Overview & Scrutiny Committee with an overview of the Street Lighting Energy Reduction Project.

**Executive summary**

- 2 The Environment and Sustainable Communities Overview and Scrutiny Committee, at its meeting on 12 July 2019, agreed to include in its future work programme for 2019/20 an overview of the Street Lighting Energy Reduction Project.
- 3 The project, an 'invest to save' project, was part of the council's wider Carbon Management Programme with a target of reducing the council's carbon emissions by 40% by 2015.
- 4 The project commenced in 2013 when Cabinet agreed to a consultation on the proposed changes to the Street Lighting Policy to enable the council to adopt its proposed approach to street lighting across the county. The scope of the project included:
  - retrofitting of street lights with more energy efficient light sources;
  - removal of existing street lighting that is not specifically required by the Street Lighting Policy, where it is safe to do so, with a clear commitment that no street lights would be removed in residential areas;
  - use of a central management system or fixed settings to facilitate dimming; and

- de-illumination of traffic signs where regulations allow.
- 5 The project identified targets for:
- energy (including financial savings) and carbon reductions;
  - street lighting retrofits;
  - street lighting removals;
  - bollards;
  - pedestrian crossings;
  - traffic signals retrofits; and
  - illuminated signs.
- 6 The project also included the use of a central management system or fixed settings to facilitate dimming which again would contribute to both energy and carbon reductions.
- 7 The project concluded in March 2019 and arrangements have been made for Brian Buckley, Strategic Highways Manager, and Darren Hubbard, Street Lighting Manager, to attend the meeting on 19 November 2019 to deliver a presentation focusing on:
- a review of the Street Lighting Energy Reduction Project Phase 1; and
  - proposals to extend the Project – Phase 2.
- 8 A copy of the presentation is detailed at Appendix 2.

## **Recommendation**

- 9 The Environment and Sustainable Communities Overview and Scrutiny Committee are asked to note and comment on the information provided in the report and presentation.

## **Background**

- 10 The Street Lighting Energy Reduction Project was agreed by Cabinet in December 2012. The project set out to achieve energy reduction through a combination of:
- retrofitting street lights with more energy efficient light sources - 41,412 street lights were proposed for retrofit;

- assessment of street lighting provision and the removal of street lighting that is not specifically required by the Street Lighting Policy where it is safe to do so - 7,000 street lights were proposed for removal;
  - retrofitting bollards, pedestrian crossings and traffic signals with more energy efficient light sources - 28 bollards, 34 pedestrian crossings and 2,991 traffic signals were proposed for retrofit;
  - de-illumination of traffic signs; replacement with reflective signs where permitted; 942 signs were proposed; and
  - the use of a central management system or fixed settings to facilitate dimming.
- 11 The upfront capital costs (investment) would be financed by prudential borrowing from the Public Works Loan Board (PWLB). The borrowing would then be funded through the following revenue savings:
- reduction in electricity budgets;
  - reduction in maintenance budgets; and
  - reduction in carbon reduction commitment budgets.
- 12 Highways Services were responsible for the design and installation. They currently maintain all of the council's highway street lighting except for traffic signals.

### **Main implications**

- 13 The main implications encountered during the project are detailed within the report.

### **Consultation and Revised Street Lighting Policy**

- 14 Cabinet granted approval in July 2013 to carry out a public consultation on a set of changes to the council's Street Lighting Policy in order to confirm the council's approach to its provision of street lighting across the county in line with the energy reduction project.
- 15 The consultation incorporated the following changes to the Street Lighting Policy:
- dimming of lights during certain hours;
  - removal of lights in line with national guidance on provision and with the clear commitment that no street lights would be removed in residential areas;

- retrofitting of street lighting with more efficient light sources; and
- de-illumination of traffic signs where regulations allow.

16 A countywide consultation exercise was undertaken on the policy review that included the use of the Area Action Partnerships (AAPs), the council's website, emails to relevant stakeholders including Town and Parish Councils, media releases, use of the Durham County News, social media messages and information available in customer access points.

17 A total of 255 responses were received via the online survey. No paper surveys were returned. From the responses received, it was considered that the majority of responders were supportive of the updated policy.

18 The following table provides a summary of the responses received from the online survey:

	<b><i>Strongly Agree</i></b>	<b><i>Agree</i></b>	<b><i>Neither Agree nor Disagree</i></b>	<b><i>Disagree</i></b>	<b><i>Strongly Disagree</i></b>
Do you agree or disagree with the dimming of street lighting?	40%	32%	4%	10%	14%
Do you agree or disagree with the proposal to remove street lights where it is safe to do so?	35%	31%	9%	12%	13%
Do you agree or disagree with the approach of identifying street lights that may be suitable for removal?	33%	33%	12%	11%	11%
Do you agree or disagree with the proposals to replace lit traffic signs with reflective signs where the Department for	36%	37%	10%	10%	7%

Transport allows?					
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- 19 In relation to the potential removal of existing street lighting that is not specifically required within the remit of the policy, the feedback received confirmed that prior to removals there should be a robust process in place for undertaking a risk assessment. The policy revision, therefore, reflected that street lighting would only be removed where safe to do so based on a road safety risk assessment, this assessment being undertaken in consultation with local Members, Town and Parish Councils to ensure that it was fully informed by local knowledge.
- 20 Concerning the dimming of lights, as dimming is not usually perceptible to the human eye, it was, therefore, considered to be reasonable to dim during the quieter periods of the evening and early morning when there are fewer people using the highways network. The revised policy states where street lighting equipment installed allows lighting will be dimmed as follows:
- 10.00 pm to 12.00 am – 25% downwards; and
  - 12.00 am to 5.00 am – 50% downwards.

### **Street Lighting Retrofits and Removals**

- 21 Retrofits commenced in June 2013 and have taken place across the county with the number proposed revised in 2015 to 55,000. The introduction of the new energy efficient Light Emitting Diode (LED) street lights resulted in some general queries/requests for further information mainly in relation to the reduction of light spillage onto homes and gardens.
- 22 The council has led the development of regional procurement frameworks for the supply of LED street lights through the North East Highways Alliance.
- 23 LED technology has advanced rapidly over the last few years. Annual and ad-hoc procurement exercises ensured that the most energy efficient and cost-effective LED street lights were sourced throughout the project.
- 24 In many cases it was not possible to retrofit to LED as the lighting levels required by the Street Lighting Policy could not be achieved using the available LEDs owing to the spacing between lighting points, the style of existing lanterns, and the additional weight/windage of LED lanterns.
- 25 Commencement of street lighting removals was delayed by the need to update the Street Lighting Policy to facilitate removals. The policy only

allows the removal of street lights that are not required in accordance with the policy and where it is safe to do so.

- 26 Detailed analysis of the street lighting stock via desktop and site visits identified that only 3,329 street lights were not required by the Street Lighting Policy.
- 27 The council commissioned Independent Road Safety Auditors to carry out robust risk assessments on the proposed removal of the 3,329 street lights. The assessment identified any potential hazards to highway users and considered if and how these could be mitigated. If the risk assessment identified any significant road safety issues that could not be mitigated, then the council did not proceed with removal.
- 28 The robustness of the process is reinforced by the fact that 2,151 removals have taken place, far fewer than originally proposed, owing to issues identified in the risk assessment by the Independent Road Safety Auditors that could not be mitigated.
- 29 Some removal schemes that have progressed have met with opposition during the consultation process with local Members and Town and Parish Councils whereby officers have attended meetings to discuss the concerns raised. In all cases to date, however, the risk assessments have proven to be robust.
- 30 The council has offered Town and Parish Councils a service level agreement to retain street lights in their areas on a fully funded basis where they have expressed concerns about their removal. This has resulted in 12 Town and Parish Councils entering into service level agreements.
- 31 The agreements are for a ten-year period. At the end of this period the Town and Parish Councils will have the option to renew. If service level agreements are not renewed then the street lights will be removed subject to an updated risk assessment confirming that it is safe to remove the street lights.
- 32 The risk assessment process and consultation took longer than originally envisaged in the business case due to the in-depth work and extensive consultation required. This, and the overall reduction in the number of removals, was, however, mitigated by the acceleration and increase in LED retrofits.

### **Retrofit of Bollards, Pedestrian Crossings and Traffic Signals**

- 33 These retrofits were not progressed because the detailed design process identified that additional works were required. The cost of these

additional works meant that these retrofits no longer met the 'invest to save' criteria.

## End of Project

- 34 Cabinet considered the end of project report on 10 July 2019 that confirmed that the project had achieved a 69.57% reduction in annual energy consumption which is saving 8,413 tonnes in carbon emissions. The project has been the biggest single contributor to date to the council's reduction in carbon emissions.
- 35 The report confirmed that 59,881 retrofits had been completed; 2,151 street lights were removed, and 1,168 signs had been de-illuminated.
- 36 The table below measures the cumulative financial performance of the project compared to the original business case at 31 March 2019:

<b>Description</b>	<b>Business Case 12 December 2012 £'000s</b>	<b>Actual 31 March 2019 £'000s</b>
Capital Expenditure - Total	22,552	22,532
Capital Repayments - Annualised	-1,746	-1,567
Gross Revenue Saving - Annualised	2,635	2,871
MTFP Saving - Annualised	N/A	-916

## Future Plans

- 37 The council declared a climate change emergency on 20 February 2019 and this resulted in a report being submitted to Cabinet on 10 July 2019 detailing ambitious targets for carbon reduction and identifying how these targets will be met.
- 38 The council has 83,043 street lights in the county of which 59,881 have been retrofitted with energy efficient LEDs and a further 310 installed as part of trials, new developments and highway improvement schemes. LED street lights are specified for all new and replacement street lighting installations, including new developments.
- 39 The council has developed an invest to save business case for further LED retrofits.
- 40 22,852 street lights are not currently LED. Not all will be suitable for conversion to LED due to the spacing of columns or where there is currently no suitable LED alternative although it is expected that around 17,000 will meet the criteria.

41 There were eight street lights on Pont Lane, Leadgate, between the B6308 and Bradley Cottages identified as not being required by the Street Lighting Policy but did not progress due to time constraints towards the end of the project. These will be reviewed in accordance with the processes and procedures previously employed including independent road safety risk assessment and consultation with local Councillors on the risk assessment to ensure that it reflects all local factors.

42 The apparatus included in the project is summarised in the following table:

<b>Apparatus Type</b>	<b>Existing Units</b>	<b>Removals</b>	<b>Retrofit</b>
Non-LED Lights within the Environmental Zone E1	330	0	281
Non-LED Heritage Style Luminaires	737	0	588
Non-LED Subway Units	273	0	214
Non-LED Lights in conjunction with column replacement programme	1,037	0	1,037
Non-LED Standard Style Luminaires	20,180	8	15,208
Non-LED, Non-Standard Style Luminaires	295	0	0
<b>Total</b>	<b>22,852</b>	<b>8</b>	<b>17,328</b>

43 This project has the potential to deliver further carbon reductions of up to 1,300 tonnes per annum and supports the council's Climate Change Response Plan.

44 The upfront capital costs (investment) will be financed by prudential borrowing from the Public Works Loan Board (PWLb). The borrowing will then be funded through the following revenue savings:

- reduction in electricity budgets; and
- reduction in maintenance budgets.

45 A report is scheduled to be presented to Cabinet on 11 December 2019 and if the business case is approved it is expected that works would be undertaken over three years from 2020/21 to 2022/23.

## **Conclusion**

46 The Street Lighting Energy Reduction Project has retrofitted a large proportion of the council's street lights with new energy efficient LEDs. A small number of street lights have also been removed where not

required by the council's Street Lighting Policy when it was safe to do so.

- 47 This investment has met and exceeded the financial savings anticipated in the original business case. The project has also been the biggest single contributor to date to the council's reduction in carbon emissions.

### **Background Papers**

- Cabinet Report : Street Lighting Energy Reduction Project dated 12 December 2012
- Cabinet Report : Street Lighting Policy dated 20 November 2013
- Cabinet Report : Street Lighting Energy Reduction Project – Update dated 21 October 2015
- Street Lighting Policy – updated by Delegated Decision dated 2 March 2017
- Cabinet Report : Street Lighting Energy Reduction Project – End Project Report dated 10 July 2019

### **Other useful documents**

- None.

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## **Appendix 1: Implications**

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### **Legal Implications**

There is no statutory requirement on local authorities in the United Kingdom to provide public lighting. The Highways Act 1980 empowers a Highway Authority to provide lighting on the adopted highways but there is no duty on the Highway Authority to keep the public lighting lit.

### **Finance**

Please refer to paragraphs 11, 36 and 44 detailed within the report.

### **Consultation**

There was a public consultation on the updated Street Lighting Policy. A consultation exercise was also undertaken on every proposed street light removal with local Councillors and the relevant Town and Parish Councils.

### **Equality and Diversity / Public Sector Equality Duty**

An Equality Impact Assessment (EIA) was completed for the Street Lighting Policy and reviewed in accordance with the review of the policy. The recommendations of the EIA were incorporated into the project delivery process.

### **Climate Change**

The council declared a climate change emergency on 20 February 2019 and this resulted in a report being submitted to Cabinet on 10 July 2019 detailing ambitious targets for carbon reduction and identifying how these targets will be met.

### **Human Rights**

None.

### **Crime and Disorder**

None.

### **Staffing**

The project was delivered by the council's Construction Programme and Project Management Unit, Strategic Highways in relation to design and works by the council's in-house provider, Highway Services, supported by its supply chain of competitively procured sub-contractors.

Aecom were appointed as the Independent Road Safety Auditor.

Phase 2 will be delivered by the council's Strategic Highways and Highway Services teams. Aecom will undertake the Road Safety Risk Assessment of the proposed removals.

### **Accommodation**

None.

### **Risk**

None.

### **Procurement**

LED street lights were procured competitively via regional frameworks led by the council. A procurement exercise is currently in progress for a new supplier following the end of the previous contract.