

To: INFRASTRUCTURE LAND AND ENVIRONMENT POLICY BOARD

On: 24 JANUARY 2018

Report by: DIRECTOR OF ENVIRONMENT & COMMUNITIES

Heading: STREET LIGHTING IMPROVEMENT STRATEGY – COMPLETION REPORT

1. Summary

- 1.1 This report provides an overview of the Council's Street Lighting Investment Strategy to convert all of Renfrewshire's street lighting from sodium lanterns to LED lanterns.
- 1.2 Council in June 2015 approved an £11 million capital investment to support delivery of the Street Lighting Investment Strategy. The Strategy identified 30,756 of Renfrewshire's street lights for conversion to LED Lanterns, with up to 1,356 column replacements. An initial pilot programme of LED replacement accounted for 2,143 of the 30,756, resulting in the programme replacement of 28,613 LED lanterns.
- 1.3 Renfrewshire's Street Lighting Investment Strategy has been substantially completed, with 96% of Renfrewshire's 30,756 street lights converted to LED Lanterns and 83% of the planned 1,356 column replacements as of mid-December 2017, increasing to 97% in February 2018. A further 2% will be converted as part of a specialist programme during 2018.
- 1.4 The street lighting investment strategy is on course to deliver the estimated gross revenue savings of £1.391m and the agreed net revenue saving of £750,000 per annum through reduced energy and carbon consumption and reduced maintenance costs.
- 1.5 An independent night time audit of every Renfrewshire street with LED lanterns installed has been undertaken and lights levels found greatly exceed the lighting levels set out in British Standards BS5489 and BSEN13201 for street lights, with the average minimum LUX levels being 2.88 LUX, more than the 0.8 LUX set out in British Standards and average minimum sodium lux level of 1.1 LUX.

- 1.6 97% of street lights measured during the audit were identified as being installed as per the design specification and emitting high quality light levels, in exceedance of minimum standards, with the 3% requiring remedial actions undertaken for completion during spring 2018.
- 1.7 Renfrewshire has lead the way on street lighting improvements across Scottish authorities and removed the risk of being unable to source traditional sodium light components when they cease manufacture during 2017 as part of the European Union Energy Saving Directive and offset a projected increased electricity costs over the next 10 years.

2. Recommendation

It is recommended that the Infrastructure, Land and Environment Policy Board:

- 2.1 Notes the progress and planned completion timescales for the Renfrewshire Street Lighting Improvement Strategy as approved by Council in June 2015, replacing existing street lanterns with LEDs to improve the quality of lights and reducing energy, carbon and maintenance requirements.
- 2.2 Notes the results of the independent night time audit, where light levels in street lights where LED Lanterns have been installed, are in exceedance of the minimum British Standards, as set out in the design specification.

3. Background

- 3.1 As set out in previous reports on street lighting to the Environment Policy Board and Council in March 2014 and June 2015 respectively, Renfrewshire Council currently owns some 30,756 street lights.
- 3.2 The key drivers and benefits for conversion of Renfrewshire's street lights to LED lanterns are:
- To achieve a reduction in electricity costs for street lighting. Electricity costs from street lights in 2016 was approximately £1.6 million
 - To reduce the Council's overall carbon consumption (62%) and associated carbon reduction commitment of which the street lighting costs were approximately £126,000 per annum.
 - To reduce ongoing maintenance costs, as LED lanterns have an estimated lifespan of approximately 20 years, as opposed to 3-5 years for a sodium lantern.
 - To remove the risk of being unable to light streets as a result of the European Union Energy Saving Directive, this will cease the manufacture of sodium light components in 2017 and cease the production of lamps in 2020.

- Improve the quality of lighting, direction and colour rendition through the white light rather than orange sodium light that back-spills above and around the lit area.
- 3.3 Street lighting is a benefit to the local community, contributes to night time road safety, has a prevention/reduction role in terms of street crime and helps to promote economic development by supporting a 24 hour economy. Street Lighting is provided in accordance with the requirements of the Roads (Scotland) Act 1984 and via guidance provided by relevant British Standards.
- 3.4 The business case investigated options for a large scale lantern replacement programme, concluding the preferred option to replace the lanterns in all street lights, along with limited column renewal, across Renfrewshire at a capital investment cost estimated at approximately £11m. In June 2015 the Council approved £11 million of capital investment to support delivery of the Street Lighting Improvement Strategy.
- 3.5 The delivery of this project through the replacement of the 30,756 street lights is a gross recurring revenue saving estimated at £1.391m per annum. It was agreed the revenue savings generated from the programme are used to support self-financing prudential borrowing to augment the Council's normal capital lifecycle funding identified to support ongoing renewal in the street lighting stock. The net recurring revenue saving after addressing the ongoing annual revenue cost arising from the prudential borrowing is approximately £750k. It is also recognised that moving forward the delivery of the programme will also support future cost avoidance in the context of an expected increase in energy costs over the medium to longer term.

Design and Installation

- 3.6 The detailed design process commenced in June 2015. Every street was specifically designed, based on column location and road geometry. This produced a detailed design framework which was then independently verified by a professional lighting design engineer and where necessary modifications made.
- 3.7 Installation involved the physical replacement of sodium lanterns with LED lanterns and commenced in April / May 2016. The installation was undertaken in 3 phases, namely phase 1 Paisley, phase 2, Johnstone & South Renfrewshire and phase 3 Renfrew and Renfrewshire North.
- 3.8 In August 2017 the contractor delivering phases 2 & 3 of the contract, unfortunately, went into administration. This delayed the programme's completion by around 8 weeks, whilst a replacement contractor was procured, approved and mobilised to complete the remaining lantern conversions of phases 2 & 3.

Street Lighting Investment Strategy – Implementation Progress Update

- 3.9 The strategy is substantially completed with 96% of Renfrewshire's 30,756 street lights converted to LED lanterns as of mid-December 2017, with a further 1% of lights being converted in February 2018. A further 2% will be converted as part of a specialist programme during 2018, increasing the total to 99%.

- 3.10 Of the 1,356 anticipated column replacements, 1,120 columns have already been replaced. This included a mixture of steel and concrete columns. There are around 220 concrete columns still to be replaced. These are columns situated in difficult locations or on land not in Council control and will be replaced throughout 2018. In addition to the planned column replacement through the investment strategy, around 60 columns have been damaged through road traffic accidents and these will be replaced and repaired through an operational programme over the coming months.
- 3.11 2% of streetlights are attached to walls of houses or buildings or are concrete columns and shall be converted to LED during the remainder of 2018.
- 3.12 The LED lanterns are now demonstrating delivery of the drivers and benefits set out in the original business plan through:
- Reduced street light energy and carbon consumption by 64% In relation to carbon consumption, this being in excess of the 62% in the original business plan, with a reduction from 7,854 tonnes per annum to 2,827 tonnes per annum
 - Reduction in the overall Council carbon consumption by 8% and carbon reduction commitment costs by 13%
 - Reduced street lighting maintenance costs
 - Delivery of the estimated gross revenue savings of £1.391m and the agreed net revenue saving of £750,000 per annum.
- 3.13 Across Scotland around 35% of Scotland street lights have been converted to LED lanterns. Renfrewshire has one of the highest percentage of LED street lighting of authorities across Scotland.

Post Implementation Audits

- 3.14 There have been two different monitoring and review processes to support the implementation. The first of these was an independent check of the work carried out by the contractors to ensure work is of the quality and the correct specification. The second was a night time audit. An independent Street Lighting Auditor undertook a night time audit of every street and lamp in Renfrewshire that has had an LED lantern installed. Every street was audited to assess and measure the light level emitted on the street at ground level. Light meter readings were taken at various locations, including directly beneath columns and at midpoints between columns and any areas which appeared dark to the eye.
- 3.15 The audit results have shown the average minimum lighting levels from an LED lantern in residential streets is 2.88 Lux, well in excess of the British standard of 0.8 Lux, showing an overall improvement in the quality of street lighting on Renfrewshire's roads.
- 3.16 97% of street lights converted to LED lanterns were identified during the audit as being installed as per the design specification and emitting high quality lighting levels.

- 3.17 For the 3% identified for improvement to the lighting level, 3 main reasons for remedial action were identified as
- tree vegetation
 - dark lamps
 - design modifications
- 3.18 The remedial actions to address areas highlighted through the audit have been commenced and will continue through spring 2018, and will again be independently verified to show correction of the audit findings.

Enquiries & Complaints, LED Installation Programme

- 3.19 The level of complaints in relation to LEDs continues to remain low in comparison to the number of street lights within Renfrewshire.
- 3.20 Calls by the public to the Council's customer service centre for all dark lamps, which includes LEDs which are not lit or considered not bright enough, are as follows:

Direct to Customer Service Centre

Financial Years	Number of Dark Lamps Reported	% of total number of lights	Average Faults per month	% of total number of lights
April 2017 to Dec 2017	1011	3.29%	101	0.33%
2016 - 2017	3908	12.71%	326	1.06%
2015 - 2016	5504	17.90%	459	1.49%

- 3.21 In relation to complaints & enquiries from the public direct to the department, these again remain low and are as follows:

Financial Yea	Number	Average per Month
2017 to date	141	16
2016-17	350	29

- 3.22 This pattern is also reflected in relation to elected members' enquiries & complaints, and is detailed below for all street lighting:

Financial Yea	Number	Average per Month
2017 to date	250	25
2016-17	369	31

Repairs and Maintenance – Streetlighting

- 3.23 The Council's street lighting maintenance and repair service was brought in-house in February 2016, as a result of contractual dispute and a significant decline in the performance of repairs. Facilities Management now undertake repairs and maintenance of the existing street lighting network within Renfrewshire. There are 48 locations which currently require cabling works. Of these, 9 locations require Scottish Power works to be undertaken, 7 locations await materials and 32 locations require a procured contract to be undertaken. Cabling faults account for 0.15% of the Council's street lighting stock.
- 3.24 Since February 2016 there has been significant improvement in performance in responding to dark lamps and undertaking repairs.
- 3.25 The percentage of reported street lighting faults which were attended within the 7-day timescale are:

March 2016	<63%
June 2017	93%
August 2017	99%
December 2017	99%

Implications of the Report

1. **Financial** – None.
2. **HR & Organisational Development** - None.
3. **Community Planning** -

Creating a sustainable Renfrewshire for all to enjoy - Reducing carbon consumption, through the implementation of LED streetlights.
4. **Legal** - None
5. **Property/Assets** - None.
6. **Information Technology** – None.
7. **Equality & Human Rights** - The Recommendations contained within this report have been assessed in relation to their impact on equalities and human rights. No negative impacts on equality groups or potential for infringement of individuals' human rights have been identified arising from the recommendations contained in the report. If required following implementation, the actual impact of the recommendations and the mitigating actions will be reviewed and monitored, and the results of the assessment will be published on the Council's website.

8. **Health & Safety** - None
 9. **Procurement** – None
 10. **Risk** - None.
 11. **Privacy Impact** – None
 12. **CoSLA Policy Position** - none
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List of Background Papers - None

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