Item No.	Classification: Open	Date: 13 September 2017	Decision Taker: Cabinet Member for Environment and Public Realm
Report title:		Street Lighting – Capital Investment Programme 2017 – 2020	
Ward(s) or groups affected:		All	
From:		Strategic Director of Environment and Social Regeneration	

RECOMMENDATION

1. That the cabinet member for environment and public realm agrees the street lighting investment programme for 2017-20 and their implementation as set out in the body of the report and the attached appendices.

2. That the cabinet member notes the ongoing progress made in the management of street lighting assets and the reduction of costs against an increasing financial burden for energy charges.

BACKGROUND INFORMATION

3. The total capital programme allocation for the 10 year investment programme (i.e. from 2014/15 - 2023/24) in street lighting is £5m equating to £0.5m per annum. This report sets out proposals for the second three years of the programme 2017-20 aimed at the replacement of these units.

4. There are 21,460 street lights and illuminated street furniture located on Southwark's Public Highway Network. (Appendix 1). A detailed inventory of assets and the attributes of all illuminated furniture are kept in a comprehensive asset management system called Confirm. This system is also used for works ordering, payment administration and for the management of all maintenance programmes.

5. Service delivery is through an amalgamated operations and management arrangement which was instigated in May 2003. Environment and Social Regeneration staff based at the Blackpool Road depot and offices carry out all elements of street lighting including lighting and electrical design, management and supervision of operational works and the on street works themselves.

6. Mains electrical supply cables are managed and maintained by United Kingdom Power Networks (UKPN). UKPN are the London and South East District Network Operators and they carry out electrical mains connections, disconnections and transfers on our illuminated street furniture stock.

7. Southwark have access to an independent connection provider (ICP). The use of an ICP for mains transfer project works giving us financial savings and greater control of the programme, reducing timescales for delivery and inconvenience to our road users.

8. The Climate Change Act 2008 set a legally binding carbon emission reduction targets for the UK for 2020, to include a reduction of 34% in greenhouse gas

emissions, from 1990 levels, and for 2050 reduction of at least 80% in greenhouse gas emissions, from 1990 levels. It also introduced five-yearly carbon budgets to help ensure those targets were met.

9. Information approved from Southwark energy team show that at current energy prices, every tonne of carbon emissions Southwark produces costs £160.00 in electricity charges, or £130.00 in gas charges. Therefore, every tonne of carbon emissions Southwark can reduce, by using less electricity or gas, saves Southwark an average of £145.00 on energy bills. Switching to a green technology such as LED efficient lighting will help contribute to this. LED technology offers us an opportunity to do this by reducing energy and lowering carbon emission.

10. Currently, the council spends approximately £0.746m a year in electricity charges for street lighting. Electricity charges are expected to increase by 15% by 2020, resulting in an estimated increase of £112k at current usage levels. If our existing assets are not changed to an LED, this will see our expenditure rise to around £0.858m in 2020.

Assets management and condition

11. The systems and technical policies adopted for the maintenance and management of highway street lighting and illuminated street furniture in Southwark are compliant with both the national code of practice 'Well lit Highways' and the Institute of Lighting Professionals technical guidance report (TR22) 'Managing a Vital Asset'

12. The operational element of street lighting delivery is registered by the National Inspection Council for electrical installation contractors. External audits have shown that the electrical installation quality for street lighting in Southwark is of the highest quality, with zero non conformity notices issued in the last 3 years.

13. In line with code of practice guidance all illuminated street furniture is inspected for structural integrity and / or electrical safety. The coverage and timing of this are is in line with guidance set out by the Institution of Electrical Engineers and BS7671.

14. The previous street lighting capital replacement programmes have focused on the removal of all structural high risk columns and the highest energy consumption lanterns. Specifically high pressure sodium – SON (Orange) lanterns, which were recognised as being energy inefficient and providing poor lighting.

15. Routine maintenance regimes are in place to provide annual visual inspections of all illuminated street furniture this includes equipment condition, an overview of electrical integrity and function / operation.

16. All illuminated street furniture is inspected, at night, on a 2 week rota for the correct operation. The night 'scout' follows a predefined route ensuring every road in the Borough is visited at least once in 10 working days.

17. Despite the improvement to asset condition set out above and further advances in LED technologies there remains up to 10,000 street lights that operate using

dated technology (non LED based) which in terms of energy usage and associated carbon emissions are significantly worse than modern installations.

KEY ISSUES FOR CONSIDERATION

Borough Investment Programme

18. A rolling non destructive testing programme is currently in place for all lamp columns in the borough. The structural condition of a lamp column is given as red, high amber, low amber and green with red being the poorest condition. All items identified as red or high amber will be prioritised for replacement over energy efficiency due to it being safety critical. Re-testing of low amber and green columns is scheduled to be carried out during specified time scales in relation to TR22. Currently the operational process is run with having nil structural failures or high risk items.

19. Having removed the majority of the worst examples of lighting equipment and dilapidated stock and as energy costs are anticipated to continue to rise further, greater consideration is now given to energy and carbon reduction. This is in line with the selection methodology for the street lighting investment set out in Appendix 2. The investment programme will also focus on ward areas which are due for cyclical maintenance, such as bulk lamp clean and service.

20. On completion of the 2014 - 2017 Street Lighting Capital Investment Programme, Asset Management Services changed in total 499 Street lanterns which were considered the lowest standard of lighting in Southwark by representing the highest energy and carbon consumption. The total energy savings for these lanterns over this three year period and each year thereafter equates to around £57,000.

Investment in LED lighting

21. LED Lighting is now recognised as having a long and predictable lifetime. The lifetime of LED street lights is usually 15 to 25 years, four or more times the life of the current lamps adopted. In addition to CO2 and cost savings replacing SON lanterns with LED lantern across the borough will:

    - Reduce sky glow and night time pollution
    - Reduce maintenance costs and disruption to the road network.
    - Reduce Southwark's street lighting carbon footprint.

22. One of the main benefits of LED lighting is the lower cost of ownership; lower operating cost comes from the reduced energy usage of the luminaire compared to conventional lighting. The maintenance cost should be dramatically reduced as manufacturers are stating that the life of LED fittings can last up to 100,000 hours compared to an average of 16000 hours for conventional fittings. This would lead to the LED luminaires having no need for lamps to be replaced compared to sodium and metal halide types of luminaires.

23. An LED light source will be seen as a significant step for sustainability due to their improved energy consumption and overall carbon footprint saving compared to conventional lighting. Residents will benefit from the less obtrusive light along with environmental benefits from minimal light pollution from typical LED fittings. Performance from the LED fittings will enhance security due to the

white light produced and aid resident's sense of wellbeing within the surrounding environment especially in enclosed areas.

24. As there are no current standards for LED fittings any manufacturer can make a fitting with bold claims towards energy savings and performance. It must be made clear that LED performance criteria differs from any other type of light source, and because of this should never be compared with each other. Asset management service have created a benchmarking questionnaire based on best practice. This is issued to all manufactures. Appendix 5.

25. The continuing fall in the prices of LED products of around 15% to 20% per year is expected to drive the push towards general lighting being changed for an LED counterpart over the years to come.

26. High Pressure Sodium - SON lanterns represent the highest energy consuming and carbon producing and thus are the lowest standard of lighting in the Borough. Therefore a 3 year programme has been prepared which will upgrade and renew all roads in the Borough which contain SON lanterns to a low energy electronically efficient and low carbon production LED lighting system. The programme for lighting improvements for years 2017-2020 are set out in Appendix 3.

27. An energy reduction calculation for year 1 of the programme is shown in Appendix 4.

28. It should be noted that whilst a 3 year investment programme is prepared the results from any structural testing, which indicate that a lamp column structural integrity is in a critical condition (indicated as red), will be prioritised ahead of the investment programme. This may cause engineers to revisit the selection methodology and amend year 3 onwards. This is inline with the selection methodology process in appendix 2.

29. All products selected by engineers for use in this programme will comply with the Institution of Lighting Professionals' product specification guide to ensure component elements; optical, mechanical, lighting distribution etc. are comparable to or better than the current lighting materials and lamps used.

30. The colour temperature of the lights will be determined dependent on local environment and classification of road. Careful consideration will be taken as not to effect the local environment inclusive of the flora and fauna impact.

31. All street lighting investment schemes will be designed to national standards, BS EN13201 and BS5489:1:2013. They will also reflect the requirements of the streetscape design manual and street lighting design guide.

Energy

32. Energy purchasing for street lighting is through the laser procurement group with an energy contract measured half hourly. This ensures consumption is measured on actual consumption rather than based on estimated operational times. A meter administrator power data associates (PDA) verifies our entire street lighting inventory on a monthly basis to ensure correct billing.

33. Energy currently costs the council 11.97p per KWh. Southwark's sustainability and energy manager predicts an annual increase of 5%. This would include an

expected small increase with commodity prices as well as a larger known increase in fixed, non-commodity prices. This could mean an annual increase to 13.86p per KWh over the 3 year period. If agreed the proposed investment programme will save an estimated £152k, over the project, from combined energy savings and the reduction in bulk lamp changing.

Investment constraints

34. The capital allocation is for street lighting located on public highways and thus expenditure is limited to roads maintainable at public expense through general fund allocations. Estate roads are therefore excluded.

Human Resources implications

35. The planning, programming, operations and supervision of all the programmes in this report will be managed by the traded services division in conjunction with the in-house street lighting service providers based within the asset management business unit.

Customer implications

36. Resident satisfaction from the June 2016 resident satisfaction tracker have shown 87% satisfaction with Street Lighting which is a rise of 9% to from the previous year. This level of satisfaction is expected to continue in 2017/2018 with these lighting improvements contributing to sustain satisfaction in 2019/2020.

37. Community councils and local stakeholder groups will be notified of all proposed works, with local residents notified by way of letter drop. The works programme will also be posted on the council's web-site and via social media where available.

38. The expectations are that there will be no adverse effects to users of the public highway in Southwark.

Community impact statement

39. No one specific community is impacted by the lighting improvements proposed in this report as it will benefit all users of both carriageways and footways. However, lighting improvement schemes across the country have been shown to reduce crime and fear of crime for all users in residential areas.

40. Outdoor LEDs offer improved visibility for pedestrians, traffic and visibility for road level street signage, as well as reduced light pollution. This would include reducing sky glow and light shining into properties.

41. Well designed LEDs are expected to last up to 100,000 hours of use. This will mean we have to attend the asset less frequently and will reduce our carriageway impact to the customer and user.

42. Providing new lighting located on the council's major traffic routes and town centres will improve the quality, colour rendering properties and distribution of light. These factors have been shown to lead to the growth in the social environment and night time economy.

Sustainability implications

43. This proposal will support the council's carbon reduction commitment as energy usage during 2017/2020 will be reduced from 306,908 KWh to 127,878 KWh which results in carbon savings of 71.47 tonnes.

44. All new lanterns fitted in this programme will consist of the latest LED lamp technologies which shall out perform their standard counterparts reducing both planned and reactive maintenance visits. Luminaries will be made with aluminium bodies and fully comply with the Waste Electrical Electronic Equipment Directive.

45. All redundant high/low pressure sodium lamps will be recycled by the council's waste disposal facility at asset management services operational depot to recover glass and mercury content.

Consultation

46. Where appropriate, stakeholder consultation will take place prior, during and on completion of works contained in this report.

Risk

47. A risk register for this programme has been prepared and reviewed. This is held as part of the service's operational documents. The council's programme of inspections and planned maintenance regimes set out above coupled with this investment in street lighting works is an effective way of controlling the risk of third party street lighting related claims against the council.

Delivery

48. The delivery of the proposed works will be through designers, engineers and electricians in the traded services division. All works will be subject to quality and financial review through the environment and social regeneration division's monitoring processes.

Financial implications

49. Cost of the recommendation of this report amounts to 1,474,593 (i.e. £474,593 for 2017/18 and £1,000,000 for 2018/19 and 2019/20)

50. The latest approved council's street lighting capital programme has a total provision of £3,474,593 (Cost Code: L-5110-0032) for the delivery of the street lighting projects, which is sufficient for the cost of recommendations of this report.

51. Due to the efficiencies and energy savings identified in the previous street lighting investment programme, budget savings of £25k for year 2016/17 and £75k for year 2017/18 have been identified and implemented.

52. The overall programme for the works covered in this report are based on initial estimates and may fluctuate due to varying circumstances such as increases in material prices, other public realm projects, conditions or other adjacent works which may require the work scope and estimates to be adjusted. The programme will be carefully monitored by the delivery team at asset

management services with monthly performance trackers and reports under taken.

53. The total expenditure incurred against the capital allocation for the scheme will be monitored and reported on as part of the overall capital programme.

54. Any savings from this investment will be included in the next revenue budget setting programme for 2019/2020.

Future Savings / efficiencies

55. LED street lighting will result in a reduction of maintenance costs, notably the reactive maintenance costs, which are incurred as a result of faults and failures. The increased lifespan of LED lights and fewer components failures will result in a reduction in planned preventative maintenance costs also. The 2017/20 programme will be replacing stock that is due for its cyclical maintenance and cost saving are shown in Appendix 4.

56. Whilst savings in energy consumption have been identified for this programme, proposals to reduce street lighting budgets have not been made. This is due to the volatility of the energy markets and the expected increases in energy costs on our existing asset portfolio, which are not currently of an LED source and not part of the lighting investment programme.

SUPPLEMENTARY ADVICE FROM OTHER OFFICERS

Strategic Director of Finance and Governance

57. This report is requesting the cabinet member for Environment and Public Realm to approve the Street lighting investment programme for 2017-20 and its implementation, as set out in the body of the report and the attached appendices and to note the ongoing progress made in the management of street lighting assets and the reduction of costs against an increasing financial burden for energy charges.

58. It is noted that the proposed investment can be contained within the departmental capital budgets allocated as part of the council's capital programme.

59. It is also noted that any savings from this investment will be included in the next revenue budget setting programme for 2019/2020.

60. Staffing and any other costs connected with this recommendation, together with any on-going maintenance costs from the investment will need to be contained within existing departmental revenue budgets.

BACKGROUND DOCUMENTS

Background Papers	Held At	Contact
Asset Inventory - Full Document	Asset Management Services	Adam Dannatt - 53504
Risk Register	Asset Management Services	Adam Dannatt - 53504
Full breakdown of cost analysis	Asset Management Services	Adam Dannatt - 53504
Completed works street lighting programme 2014 - 2017	Asset Management Services	Perry Hazell - 54695

APPENDICES

No.	Title
Appendix 1	Asset inventory
Appendix 2	Street Lighting Selection Methodology
Appendix 3	Street Lighting Replacement Selections
Appendix 4	Energy and Cost Savings Overview
Appendix 5	Benchmarking LED Questionnaire

AUDIT TRAIL

Lead Officers	Deborah Collins, Strategic Director for Environment and Social Regeneration
Report Author	Mick Lucas, Head of Traded Services
Version	Final
Dated	13 September 2017
Key Decision?	Yes

CONSULTATION WITH OTHER OFFICERS / DIRECTORATES / CABINET MEMBER		
Officer Title	**Comments Sought**	**Comments included**
Director of Law and Democracy	No	No
Strategic Director of Finance and Governance	Yes	Yes
Cabinet Member	Yes	No
Date final report sent to Constitutional Team		12 September 2017