Appendix 1

Overview and Scrutiny Report

Street Lighting Review

October 2013

1. Executive Summary

1.1 A sub-group of the Environment and Culture Sub-Committee was established in June 2013 to explore the different options for street lighting with a view of reducing energy consumption and to achieve efficiency savings.

1.2 Members of the sub-group met with officers of the Council in order to gather evidence and the information needed to formulate recommendations. They also received an on-site demonstration of the Mayflower system to assess the different levels of dimming possible. Following the on-site demonstration they initiated a two week trial of dimming and trimming in the Weetslade area and sought local resident's views.

1.3 The sub-group considered the benefits of implementing the Mayflower central monitoring system across all residential areas of the borough and have recommended that the Director of Finance explore the different business models with a view of purchasing and implementing the system across the borough.

1.4 Following a trial of dimming and trimming street lighting in the Weetslade area, and consideration of the different dimming levels, potential energy and cost savings, the sub-group recommended that dimming is gradually phased in across all residential areas of the borough at 75% power consumption and then to 60% between midnight and 5.30am and that street lighting is trimmed in the evening and at dawn. They also proposed that SSEC are asked to accelerate the street lighting maintenance cycle so that dimming and trimming is in place across all residential areas in the borough by the end of 2014.

1.5 Due to the time constraints for this review, the sub-group did not have the time to investigate in detail whether part night switch off was a viable option for some non residential areas of the borough but did agreed that this was something that should be considered as a longer term savings option.

2. Recommendations

2.1 In accordance with Section 122 of the Local Government and Public Involvement in Health Act 2007, Cabinet are required to provide a response to the recommendations of the Overview and Scrutiny Committee within two months. In providing this response Cabinet are asked to state whether or not it accepts each recommendations and the reasons for this decision. Cabinet must also indicate what action, if any, it proposes to take.

R1: That Cabinet ask the Director of Finance to explore the three different business models with a view of purchasing and implementing the Mayflower central management system across the residential areas of the borough (see paragraph 6.9).

R2: That Cabinet considers as part of the new lighting strategy to gradually phase in the dimming of street lights in residential areas across the borough to 75% power consumption then to 60% between midnight and 5.30am, and that street lights are trimmed in the evening and at dawn.

R3: That Cabinet ask SSEC to accelerate the street lighting maintenance cycle so that dimming and trimming is in place across all residential areas in the borough by the end of 2014.

R4: That Cabinet give further consideration to the option of part night switch off in non-residential areas.

3. Background to the study

3.1 Environment and Culture Sub-Committee at their meeting on the 12 June prioritised a review of street lighting. The findings of the review would be reported back to Cabinet in the autumn and contribute towards the new lighting strategy for the borough. The main aim was to explore the different options for street lighting with a view of reducing energy consumption and to achieve efficiency savings.

3.2 It was agreed at the outset that the review would focus on:

- Exploring the different options for street lighting
- Consider the impact that these changes will have on local communities
- Consider the views of local people and stakeholders
- Recommend ways forward

3.3 A sub-group of the Environment and Culture Sub-committee was established to carry out the study. Members of the sub-committee included:

Councillor Brian Burdis
Councillor Cath Davis
Councillor Gary Bell

4. Methodology

4.1 The sub-group met with Andrew Gate, Senior Manager for Commercial Partnerships and Phil Scott, Head of Environmental Services on the 18 July and 23 September 2013 to gather information and explore the different options for street lighting.

4.2 On the 11 September 2013, the sub-group received an on-site demonstration of the Mayflower central management system at Rayleigh Drive, Weetslade. This gave the sub-group the opportunity to see the system in operation and assess the different levels of dimming possible.

4.3 Following the on-site demonstration, the sub-group initiated a two week trial of dimming and trimming of approximately 400 street lights in the Weetslade

area. Following the trial resident's feedback was sought to assess their views of the lighting changes.

Findings

5. Current Position

5.1 At their meeting on the 12 June 2013, the Environment and Culture Sub-committee received a presentation which set out the current position in relation to street lighting in the borough and the Private Finance Initiative (PFI) programme. It was explained that North Tyneside had entered into a PFI in partnership with Newcastle City Council for street lighting and illuminated signs and bollards. The project which had commenced on 1 July 2004 was worth £254m over 25 years; it is due to finish on the 30 June 2029. The main aim of the PFI was to deliver a high quality lighting service, reduce road traffic accidents, crime and the fear of crime.

5.2 The PFI programme is broken down into five year blocks, the main activities are:-

- First five years to 30 June 2009: replaced 80% of stock with new lighting
- Next five years to 30 June 2014: replacement of all orange glow lanterns with white lights
- Until 30 June 2024: each five years replace a percentage of the deemed to comply columns on a point for point basis (between 2019-2024 street lights installed 10 years prior to the commencement of the PFI will be replaced, starting with those in the worst state first)
- Final five years to 30 June 2029: ensure that all stock is in excellent condition with a minimum of 5 years remaining expected life.

5.3 In North Tyneside, street lighting consumes over 18m kilowatt hours (kwh) per year, this currently exceeds the Council's share which is capped at 17.6m kwh. It accounts for 14% of the Council's carbon footprint. The current cost of energy is 10p per kwh. The annual cost to the Council is therefore running at £1.76m. The energy price at the start of the contract was 3.8p per unit. Energy has therefore risen by 260% in 9 years. The price is fixed until April 2014. It is likely to increase again at that point.

5.4 Street lighting falls under theme C of the Council's Change, Efficiency and Improvement programme. The targets for street lighting to save are £195k in 2013/14 and a further £148k in 2014/15. Savings of £100k were made in 2012/13 predominantly through the replacement of illuminated road bollards with reflective ones and festive lighting sponsorship.

5.5 Members were informed of the efficiencies that had already been achieved and work that was underway to make more savings, these include:-

- Changing illuminated bollards across the borough with reflective ones
- New development standards have been changed so that all new installations include LED lighting and central management.

- A successful part night switch off on the A189
- 1,200 lights in residential areas in St. Mary's, Monkseaton North and Weetslade wards are being replaced with more energy efficient bulbs and central management control units 'Mayflowers'. These are 100w bulbs which give the same light output as the 150w bulbs previously used.
- The remaining orange lights (circa 1,300) are being replaced by June 2014, these are 'point for point'.
- Separate Customer Satisfaction Survey will cease, this will now be included in the Residents Survey.
- Scottish and Southern Energy Contractors (SSEC) working with Capita Symonds to de-clutter the streets of redundant illuminated road signs
- The 400 columns along the Coast Road will be replaced with more energy efficient bulbs in early October 2013
- There are 15 high masts in North Tyneside. A trial of a lower energy solution will be installed on the high mast on the Cobalt Central Roundabout by Tesco.
- Following the successful deployment of the 1,200 100w bulbs, this will be rolled out to all residential areas with 150w bulbs. (10,700 in total, just over a third of the total stock). Please note that funding for Mayflowers on these units is not yet agreed, therefore they can't be remote controlled.

5.6 The sub-group were made aware of recent consultation which had taken place with local residents relating to street lighting. This included as part of the public engagement carried out during October 2013 a street lighting public meeting and walking tour which was held on the evening of 24 October 2012. Following a presentation at Wallsend Town Hall, the public who attended were taken on a walking tour around the local streets surrounding the Town Hall, where SSEC had installed a variety of lamp types to show the public street lighting as it was pre PFI; currently under the PFI and options for the future including the lower wattage dimmable bulbs now being piloted in the 3 wards and LED solutions being used in new estates. Although general public attendance was low, those that were there broadly supported dimming.

5.7 Also during January and February 2013 as part of the budget consultation, nine events relating to street lighting were carried out with residents and staff. During the events views were sought on trialling a pilot scheme in some areas of the borough where lights would be dimmed during the early hours of the morning. The response indicated broad public support for a pilot scheme with 874 people saying yes and only 85 people saying no.

5.8 Officers met with the Police in North Shields on 24 April 2012 to discuss options for street lighting energy saving including introduction of dimming into residential areas and the potential part night switch off schemes in non residential areas across the borough. The Police were supportive of the ideas and had no objections to the proposed areas for a part night switch off with the exception of the Tyne Tunnel Trading Estate area where they suggested some minor amendments. The Police fully supported the trial of part night switch off on the A189 dual carriageway. Officers also consulted with the Council's Highways department who also had no objections to the proposals. Only one resident contacted the Council in response to the A189 trial and he

expressed support for the switch off and suggested the lights could be turned off earlier in the evening say 10pm rather than midnight.

5.9 There are a number of positive examples of other local authorities implementing alternative lighting options in order to reduce energy consumption and achieve savings, these include:-

- South Tyneside Council upgraded their street lighting in 2005 which is delivering savings of £41,000 per year and reducing carbon emissions in excess of 545 tonnes annually.
- Bristol City Council have successfully installed dimming technology and new efficient white lighting as part of their street lighting upgrade. This has resulted in a £500,000 annual saving which is more importantly 2380 tonnes of CO2 emissions.
- Torfaen County Borough Council has upgraded their street lighting with a control system resulting in £80,000 worth of savings annually in energy and £46,000 in maintenance costs.
- Also several high profile universities have installed dimming technology throughout their grounds with success. Examples include Kings College, St Andrews and the University of Manchester.

6. Potential options, conclusions and recommendations

6.1 At their meeting on the 18 July 2013 the sub-group discussed different street lighting options including dimming, trimming and part night switch off.

6.2 The sub-group were asked to bear in mind when considering the potential options that North Tyneside had won a number of national awards for its street lighting and are amongst the brightest in Western Europe. Also that the high illumination levels had to a certain degree contributed towards reducing the fear of crime in the borough. This was evident in the results of the Area Forum Feelings of Safety Survey 2012, where 'good lighting' was the most-cited reason for general feelings of safety, with 35 (57% respondents) specifically mentioning this as a factor. The 2010 Residents Survey showed that 82% of residents in the borough felt safe walking outside alone in the dark which compared favourably with the England and Wales average of 76%. It should be noted that good street lighting is not the only contributing factor for reducing fear of crime.

6.3 Although crime figures have also reduced since North Tyneside entered into the PFI, it is difficult to assess the impact that improved street lighting has had on this as a number of other measures have been implemented to combat crime.

6.4 In relation to street lighting generally, residents' satisfaction rates are high with 79% of residents being satisfied with street lighting in 2011 and increasing to 85% in 2012.

Central Management System

6.5 Members discussed the main benefits of installing the Mayflower central management system, these included:

- Full flexibility
- Total remote control
- Turn off any light or section of lights where appropriate
- Timed dimming
- Identification electrical faults i.e. when a bulb needs replacing
- Accurate measure and forecast of energy consumption

6.6 Mayflower have given North Tyneside Council a free issue of 1,200 Mayflower units, approximately 400 of these have now been installed on lighting columns in Weetslade ward. Installation of 400 in Monkseaton North ward is underway and will be completed by the end of October and the remaining 400 are planned to be installed in St. Mary's Ward following this. The cost to purchase an additional 9,500 Mayflower units for the lighting columns in the remaining residential areas would be approximately £550K; this includes the cost and fitting of the units, supply of back office equipment and the annual charges associated with communication and support of the system. Appendix A shows the indicative Mayflower pricing offer for North Tyneside Council.

6.7 As well as energy related savings, additional savings will be achieved by the reduced requirement for night time scouting patrols, as the central management system will provide instant fault notification and a more intelligent overall management of street lighting.

6.8 South Tyneside Council have recently announced that they are purchasing a similar central management system by Phillips. The cost of implementing the Phillips City Touch scheme will be £650k; this includes City Touch costs and control equipment, plus lantern upgrades (approx 2,400 street lights) and Balfour Beatty costs. £190k is made up with Salix funding.

6.9 The sub-group were in support of installing the Mayflower central management system across all residential areas, as it would offer full flexibility for dimming and trimming street lights, and would be beneficial in terms of reducing energy consumption and costs. Three different business models were discussed for funding the implementation of the Mayflower central management system, these were:-

1 Council to fund the purchase of the Mayflower units using money in the PFI Street Lighting Reserve. Future year's savings would then be used to re-instate the reserve to an appropriate level by 2029.

2 SSEC to fund by drawing down money in the PFI financial model set aside for the column replacement programmes in 2019 and 2024. In the first five years of the PFI 80% of lighting columns were replaced. The remaining columns were the newer columns installed in the 10 years leading up to the 2004 commencement of the scheme. These columns are contractually due for replacement in two tranches by June

2019 and by June 2024. However modern street lighting columns are designed to last in excess of 40 years and therefore the majority of these columns should still be in good condition on their planned replacement dates. Instead the money could be used to purchase Mayflowers now and savings put aside to replace any columns that do need replacing during the life of the PFI. An audit of the structural condition of these columns is currently underway.

3 The Council and / or SSEC to apply for funding from sources such as SALIX and green investment funds. Other Councils including South Tyneside have been successful in obtaining funding for similar schemes via this route.

R1: That Cabinet ask the Director of Finance to explore the three different business models with a view of purchasing and implementing the Mayflower central management system across the residential areas of the borough.

Dimming and Trimming

6.10 On the 11 September 2013, the sub-group received an on-site demonstration of the Mayflower central management system at Rayleigh Drive, Weetslade. The demonstration was facilitated by SSEC and Mayflower and gave the sub-group the opportunity to see the Mayflower central management system in operation and the impact of the different levels of dimming.

6.11 In the surrounding area of Rayleigh Drive, approximately 400 lighting columns had been upgraded with the Mayflower central management control units and 100w light bulbs. When the sub-group arrived on site the lighting had been reduced to 75% power consumption, this still appeared to be very bright compared to the main road where the lighting columns still had the old style yellow 150w light bulbs. Members observed how the Mayflower central management system could remotely control the street lighting and dim lights at different levels and turn off a light or section of lights. A resident out walking her dog spoke to the sub-group and said that she would welcome the street lights being permanently dimmed as when they are on full power they were too bright.

6.12 Following the on-site demonstration, the sub-group initiated a two week trial of dimming and trimming in the Rayleigh Drive area of Weetslade which included dimming lights to 75% power consumption and then to 60% between midnight and 5.30am. Trimming involves lights switching on a few minutes later at dusk and off a few minutes earlier at dawn. Currently in North Tyneside our lights are on for 4,141 burning hours per annum. SSEC have suggested this should be reduced to 3,904 burning hours per annum. The trial commenced on the 24 September 2013 and local residents were notified of the trial by letter and were encouraged to feedback their views via a questionnaire. A copy of the letter and questionnaire is attached at Appendix B.

6.13 SSEC delivered 300 questionnaires throughout the Weetslade ward asking residents for their views on the lighting output changes. In total 85 residents

responded, of these 64 (75%) said that in their experience the new lighting output was very good/good/acceptable and 21 (25%) said that it was poor/very poor. Of the 7 residents who gave a 'very poor' rating, the comments were concerned not with dimming, but with the location of lighting and lighting levels in regards to more personal conveniences e.g. walking dog early in morning. Some residents read the questionnaires from the point of view that the street lights were going to be turned off and decreased, however this is not the case so comments in this respect should be taken on board however not within the context of the proposed dimming.

6.14 The sub-group considered a number of different options in relation to dimming and trimming and the associated savings, these included:-

a) Full power all night of the new 100w bulbs (saving on the old 150w bulbs)
b) Full power and trimmed
c) Dimmed to 75% level (midnight – 5.30am)
d) Dimmed to 60% level (midnight – 5.30am)
e) Dimmed to 75% all night
f) Dimmed to 75% and then 60% (midnight – 5.30am)
g) Option (c) plus trimming
h) Option (d) plus trimming
i) Option (e) plus trimming
j) Option (f) plus trimming

6.15 Following the trial and consideration of the different dimming levels, potential energy and cost savings, the sub-group suggested that option (j) was rolled out across all residential areas in the borough. It is estimated that this option would create a saving of around £203,800 per annum and reduce energy consumption by 5.18 million kwh per annum – an annual reduction of 2,784 tonnes of CO2. The estimated energy and cost savings for each option is included in Appendix C.

6.16 The practicalities of implementing dimming and trimming across the borough in the absence of a central management system were discussed in detail. A potential way forward was to gradually phase in dimming and trimming, starting with the three pilot wards (St. Mary's, Monkseaton North and Weetslade) where Mayflower units are being installed. The lighting columns in these areas could be adjusted by remote control with immediate affect. In the remaining residential areas not covered by Mayflower (this equates to 9,500 lighting columns), these could be dimmed and trimmed by manually adjusting each individual lighting column as part of the four year maintenance cycle. The downside of this is that it lacks flexibility and once a new lighting level was set it would not be easy to change. The sub-group were informed that the four year maintenance cycle could be accelerated so that dimming and trimming across all residential areas in the borough could be in place next year.

R2: That Cabinet considers as part of the new lighting strategy to gradually phase in the dimming of street lights in residential areas across the

borough to 75% power consumption then to 60% between midnight and 5.30am, and that street lights are trimmed in the evening and at dawn.

R3: That Cabinet ask SSEC to accelerate the street lighting maintenance cycle so that dimming and trimming is in place across all residential areas in the borough by the end of 2014.

Part night switch off

6.17 The sub-group also considered part night switch in certain areas of the borough i.e. wagon-ways and industrial estates.

6.18 In July 2012 a scheme had been designed which would have led to part night switch off between midnight and 5.30am of 2,600 lights in the borough on paths and roads with an estimated saving of £93,283 per annum, however there was a political decision taken at the time not to go ahead with the scheme. Details of the potential scheme are attached at Appendix D.

6.19 A successful part night switch off trial on the A189 had been running since May 2012. This involved turning the lights off at midnight and turning them back on at 5.30am. As noted in paragraph 5.8 above, one resident, a local cyclist has given positive feedback about this trial.

6.20 Given the tight timescale for this review, the sub-group did not have time to investigate in detail whether part night switch off is a viable option for some non residential areas of the borough and therefore are not proposing this an option at present, but did agreed that this was something that should be considered as a longer term savings option.

R4: That Cabinet give further consideration to the option of part night switch off in non-residential areas.

7. Background papers

- Street Lighting briefing to Environment and Culture Sub-Committee on 12 June 2013
- Budget consultation update briefing – Theme C
- Notes of the sub-group meetings

8. Acknowledgements

8.1 The sub-group would like to place on record their thanks to the following officers for the information, support and advice they have provided:

Andrew Gate – Senior Manager for Commercial Partnerships
Phil Scott – Head of Environmental Services

Sharon Ranadé – Scrutiny Advisor

8.2 They would also like to thank SSEC and Mayflower for organising the on-site demonstration and two week street lighting trial in the Weetslade area.

9. Appendices

Appendix A - Indicative Mayflower pricing offer for North Tyneside Council
Appendix B – Residents letter regarding the street lighting trial and questionnaire
Appendix C – NTC energy savings options from bulk lamp change
Appendix D – Potential scheme for part night switch off – analysis sheets