

CABINET ITEM COVERING SHEET PROFORMA

AGENDA ITEM

REPORT TO CABINET

14 DECEMBER 2017

**REPORT OF SENIOR
MANAGEMENT TEAM**

CABINET DECISION

Environment and Transport – Lead Cabinet Member – Councillor Mike Smith

STREET LIGHTING – INVEST TO SAVE REPLACEMENT PROGRAMME CLOSE OUT REPORT

1. Summary

This report provides Cabinet with an update on the completion and close out of the whole scale replacement of street lighting lanterns with LEDs. Cabinet will be familiar with the project which has seen significant improvements and investment in lighting across every ward in the Borough. As well as the physical works to replace the lanterns and a significant number of older columns the scale of engagement with residents right across the Borough has not only touched nearly every household but has generated an incredibly positive feedback with over 75% of residents satisfied with the new lighting scheme.

Just prior to Cabinet considering this report the national highways and transport survey headline results were published which is reporting Stockton-on-Tees residents as having the highest satisfaction with street lighting in the country. This is clearly a very positive indicator for the impact of the scheme and an additional accolade to the hard financial and carbon savings identified in this report.

The principle of the scheme was set in the context of a continued reduction in Local Government Funding which has provided the Council with a significant financial challenge. To manage this the Council introduced three big ticket savings items of which one was Energy and Waste. Incorporated in to this area was to reduce the energy and maintenance costs associated with the Borough's street lighting stock.

The Street Lighting Replacement Project commenced in 2014 and is due to conclude in December 2017. During this time the Council will have spent approximately £14m updating 9,100 of its oldest street lighting columns and converting 28,000 street light lanterns to super-efficient, low maintenance LED's. On completion of this project the Council will:-

- Have achieved overall savings of £1.8M which are a combination of reductions in maintenance and energy costs.
- Have reduced its carbon emissions by 3140 tonnes per annum (45.6%).
- Have a street lighting system that meets current British Standards giving a safer environment to its residents and road users.
- Have invested approximately £4M in Stockton based business's boosting the economy & securing employment.
- Have a complete & accurate inventory of its street lighting stock.

- Be one of the first Local Authorities in the Country to have a fully LED street lighting system.
- Have achieved residential satisfaction, with 75% preferring the new LED street lighting.

2. Recommendations

1. Cabinet note the contents of the report.
2. Cabinet note that Stockton-on-Tees is the highest ranking Council area in the country for resident satisfaction with street lighting (national highways and transport survey 2017).

3. Reasons for the Recommendations/Decision(s)

The purpose of this report is to update the Cabinet on the outcomes of this project as it nears its completion.

4. Members' Interests

Members (including co-opted Members) should consider whether they have a personal interest in any item, as defined in **paragraphs 9 and 11** of the Council's code of conduct and, if so, declare the existence and nature of that interest in accordance with and/or taking account of **paragraphs 12 - 17** of the code.

Where a Member regards him/herself as having a personal interest, as described in **paragraph 16** of the code, in any business of the Council he/she must then, **in accordance with paragraph 18** of the code, consider whether that interest is one which a member of the public, with knowledge of the relevant facts, would reasonably regard as so significant that it is likely to prejudice the Member's judgement of the public interest and the business:-

- affects the members financial position or the financial position of a person or body described in **paragraph 17** of the code, or
- relates to the determining of any approval, consent, licence, permission or registration in relation to the member or any person or body described in **paragraph 17** of the code.

A Member with a personal interest, as described in **paragraph 18** of the code, may attend the meeting but must not take part in the consideration and voting upon the relevant item of business. However, a member with such an interest may make representations, answer questions or give evidence relating to that business before the business is considered or voted on, provided the public are also allowed to attend the meeting for the same purpose whether under a statutory right or otherwise (**paragraph 19** of the code)

Members may participate in any discussion and vote on a matter in which they have an interest, as described in **paragraph 18** of the code, where that interest relates to functions of the Council detailed in **paragraph 20** of the code.

Disclosable Pecuniary Interests

It is a criminal offence for a member to participate in any discussion or vote on a matter in which he/she has a disclosable pecuniary interest (and where an appropriate dispensation has not been granted) **paragraph 21** of the code.

Members are required to comply with any procedural rule adopted by the Council which requires a member to leave the meeting room whilst the meeting is discussing a matter in which that member has a disclosable pecuniary interest (**paragraph 22** of the code).

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SUMMARY

This report provides Cabinet with an update on the completion and close out of the whole scale replacement of street lighting lanterns with LEDs. Cabinet will be familiar with the project which has seen significant improvements and investment in lighting across every ward in the Borough. As well as the physical works to replace the lanterns and a significant number of older columns the scale of engagement with residents right across the Borough has not only touched nearly every household but has generated an incredibly positive feedback with over 75% of residents satisfied with the new lighting scheme.

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- Have reduced its carbon emissions by 3140 tonnes per annum (45.6%).
- Have a street lighting system that meets current British Standards giving a safer environment to its residents and road users.
- Have invested approximately £4M in Stockton based business's boosting the economy & securing employment.
- Have a complete & accurate inventory of its street lighting stock.
- Be one of the first Local Authorities in the Country to have a fully LED street lighting system.
- Have achieved residential satisfaction, with 75% preferring the new LED street lighting.

RECOMMENDATIONS

1. Cabinet note the contents of the report.
2. Cabinet note that Stockton-on-Tees is the highest ranking Council area in the country for resident satisfaction with street lighting (national highways and transport survey 2017), see Addendum report.

DETAIL

Background

1. Over recent years there has been a continued reduction in Local Government Funding which has provided the Council with a significant financial challenge. To manage this the Council introduced three big ticket savings items of which one was Energy and Waste. Incorporated in to this area was how we could reduce the energy and maintenance costs associated with the Borough's street lighting stock.
2. Our street lighting asset has been installed and developed over many decades and despite there being sustained investment some of the stock was very old and over 90% utilised a sodium 'yellowish' light source. This source consumes significantly more energy than other more modern alternatives, generates more carbon emissions and is more maintenance intensive. Figures showed that during 2012/13 the energy costs associated with street lighting accounted for 65% of the Council's overall energy bill excluding schools.
3. A project team was formulated which concluded that potential savings could be achieved by significantly upgrading the street lighting stock. In late 2013 the Cabinet approved a street lighting invest to save project to upgrade all of the Borough's 28,000 street light lanterns with super-efficient, low maintenance LED's and replace in excess of 8,500 of the oldest street lighting columns. In addition to savings it was expected that there would also be significant reductions in carbon emissions attributed to upgrading the street lighting, together with a better quality of lighting for all road users and residents of the Borough.
4. The purpose of this report is to update the Cabinet on the outcomes of this project as it nears its completion.

Energy Savings

5. Prior to commencement of the street lighting mass replacement scheme over 90% of the street lighting stock was made up of a sodium light source (yellow lighting) which were becoming outdated and consumed far more energy than other white light alternatives, including LED's. Energy figures showed that during 2012/13 the energy costs associated with street lighting was £1.54m, which represented 65% of the Council's overall energy bill excluding schools. Based on the existing lighting stock and the predicted increase in energy charges it was clear that the Council's overall energy bill associated with street lighting would continue to increase considerably if the LED replacement scheme wasn't undertaken. The mass lighting replacement project has proved successful in reducing the Council's energy costs associated with street lighting, with an overall annual reduction of £750K based on the energy costs of 2012/13 plus cost avoidance of approximately another £600K, together with a reduction in excess of six and half million kilo-watt hours of electricity used per annum. Costs and energy usage will also reduce further because, at the time of this report, there are still further consumption updates that need to be submitted to Northern Power Grid.

Future Maintenance

6. Maintenance associated with street lighting has gradually reduced as the scheme progressed. This is mainly due to an LED lighting unit being made up of multiple lighting

elements meaning if one element fails the rest will continue to function making it extremely unlikely they will suffer a total outage. This dramatically reduces costs associated with routine maintenance & inspections. It is generally accepted within the industry that should an LED remain operational for its first hundred hours it will usually remain in full working order throughout the remainder of its life, which can be up to 100,000 hours, which equates to eleven years of continual operation, or twenty years at 50% operation. This is significantly greater than the old style sodium lanterns which have a life expectancy of between four to five years respectively and therefore require significantly more human involvement and cost over an average LED unit's lifetime.

Safer Environment

7. Street lighting in Stockton is now of a much higher standard as each individual highway and footpath has been subject to bespoke design to ensure the adopted public highway is illuminated in accordance with the appropriate British Standard. This was done by utilising lanterns of varying optics and wattages to ensure all adopted highways are appropriately illuminated based on their unique characteristics. This approach has meant there are now minimal areas of non-conformities and lighting levels are consistent. With a well-designed bespoke scheme utilising high quality LED light sources colours of vehicles, obstacles and clothing are now represented much more accurately. This provides a direct benefit in reducing both the potential of road traffic collisions and the anxiety associated with fear of crime during the hours of darkness giving all residents and drivers a much safer environment. This can be evidenced in that 75% of residents surveyed are in favour of the changes made to the street lighting.

Cleaner Environment

8. Climate change is described as one of the biggest challenges mankind has ever faced and Carbon Dioxide is one of its main causes. As an energy user and community leader Stockton Borough Council has an important role to play by reducing its own carbon emissions and setting an example for others to follow. The street lighting replacement project has and will continue to contribute significantly to the overall carbon reduction targets across the Council which are to reduce CO₂ emissions from Stockton Borough Council activity (on a 2015 baseline) by 18.4% by March 2019 and 21% by March 2020. To put this in to context in 2014 prior to commencement of the project the street lighting stock accounted for 22% of all the Council's carbon emissions, although now it accounts for only 14.6% of the overall total with this figure to reduce further still. Since the first connections in September 2014, there has been a total CO₂ emissions reduction from street lighting of 45.6%, reducing from 6671 tonnes per annum to 3531 per annum.

Boosting the Economy

9. Following a robust tendering process for the major elements of the street lighting project two local businesses based in Stockton were awarded major contracts for the duration of the scheme. Stainton Lighting Design Services were awarded the lighting design element and Valmont Stainton were awarded the contract to supply the required lighting columns. Both contracts lasted for the full duration of the project. Another Stockton based business Quantum Connections were also utilised part-way through the project, when a decision was made to deviate from Northern Power Grid for the provision of the street lighting connection works. The Council also worked in partnership with a local college to employ two apprentices whom worked on the street lighting project in addition to attending college on day release to undertake an electro-technical course. Via this project the Council has invested approximately £4M into local Stockton business's thereby boosting both the local economy and securing employment.

Leading Authority

10. When commencing the mass replacement scheme project only a handful of other local authorities had started on a similar journey. On completion Stockton-on-Tees Borough Council is one of the first Local Authorities in the Country to have almost a full LED system of street lighting, that adheres to the appropriate British Standards.

Public Feedback

11. Communications was of the highest priority for the project and designed to be as customer facing as possible with the introduction of a Customer Liaison Officer and regular updates given via Council publications, the web-site, including question and answer fact sheets.
12. Another element of communications was pre-arranged meetings with all local Ward Councillors prior to works commencing in their particular ward areas, where detailed discussions took place on the scheme and allowed for Councillors to shape and influence the design if necessary. Information was also disseminated in relation to proposed energy savings, new column numbers amongst other things via a 'fact sheet', which informed Councillors providing them with vital information to either disseminate or be able to answer any queries from their constituents.
13. As stipulated a Customer Liaison Officer role was created with main functions dealing with questions, queries and issues relating to implementation of the new lighting in an efficient, effective and courteous manner. This role was extremely well received by residents and has ensured that most issues raised have been dealt with in a positive manner and to the satisfaction of the residents. In fact many commendations have been received from residents in relation to the pro-active approach taken which has led to the majority of residents surveyed being in favour of the changes made in their area.
14. Following the installation of the new street lighting a feedback questionnaire covering a range of subjects including, workmanship and perceived quality of the new lighting was sent to residents. Based on an overall response rate of 12.5%, the scheme feedback shows that 75% of residents are in favour of the changes made to the street lighting. The residents who did not favour the new lighting did so mainly because it no longer illuminated their own property due to the lighting being more directionally focused. The table below shows the overall answers to the key questions:

	Were you informed of the changes in a timely manner?	Workforce courteous, helpful and considerate?	Work carried out in a timely manner?	Do you feel the LED's have improved the Street Lighting?
Yes	84%	97%	93%	75%
No	16%	3%	7%	25%

In addition to the above below is a snapshot of the some of the other comments we have received:

- New lanterns are brilliant, love the light they provide that lights the street not the house.
- Thank you, I think they are great. I never thought they would be as good as they are. Good work Stockton Council.
- A huge improvement well done. Massive improvement for visibility.
- Yes! Yes! Hated the orange ones, love the new ones!
- The LED lighting is 100% better. Thank you.
- I love the new lights and all done quickly & well
- All A-OK. First Class Job.
- Considerably better!! Well done!
- Great job!! Well Done Council

- Boro could play in the Close at night now, might make them do better!

National Highways and Transport Network Survey

15. The Council take part in the annual National Highways and Transport Network Survey which is the leading performance improvement organisation for members that share a common interest in measuring and comparing their performance in order to improve, compare with their peers and also identify specific areas for improvement. The survey involves a questionnaire being posted to 3,300 randomly selected postal addresses within the Borough for residents to give their views on a vast array of transport / highway related subjects. In 2017 one hundred and twelve authorities took part nationally with result summaries only recently being received. In relation to street lighting, results highlighted that the residents of Stockton are the more satisfied with the system of street lighting in place than anywhere else in the Country, which is a superb achievement and undoubtedly down to the mass replacement scheme and the ethos and design principals behind it.

Challenges Faced

16. Delivering a multi-million pound Borough wide street lighting replacement programme was always going to present challenges. The following details those challenges, how they were tackled and what lessons were learnt moving forward.
17. The original three-year delivery programme was based on achieving a minimum number of column installs and lantern conversions per day. However, once works commenced it quickly became apparent that the original target was too ambitious and could not always be achieved. This was due to unexpectedly difficult ground conditions in some of the ward areas slowing progress against original targets. The programme also assumed the street lighting operatives would be wholly focused on delivering the main scheme. It transpired this was not the case, particularly during the early stages of the programme, due to the need to resource other high profile projects such as the High Street regeneration scheme and festive lighting improvement works.
18. The original street lighting inventory used when setting the proposed programme was not as accurate as was expected and therefore predictions which used the inventory as the baseline were underestimated. However, as the street lighting project progressed the inventory has been updated accordingly so upon completion it should be as accurate as possible. This will greatly assist in the future management of the street lighting asset and if further energy saving opportunities become available. A process has also been implemented that ensures an appropriate sole custodian of the street lighting inventory and the inventory be updated if any future works result in changes to any illuminated assets on the highway.
19. During the feasibility work associated with the replacement project limited assumptions were made on future street lighting growth such as new highway schemes, newly adopted developments and additional feature lighting enhancements. This has been greater than was originally envisaged due to the fact that Stockton-on-Tees is an ambitious authority which is successfully growing the borough, despite ongoing national economic challenges. This increase in the overall lighting stock has therefore reduced the overall predicted energy savings when compared to those calculated previously based on the inventory at the inception of the project.
20. The original budget estimate for the scheme allowed for connection works being undertaken by Northern Power Grid (NPG), using costs they were charging at that time. However, NPG introduced price increases shortly after the scheme commenced that resulted in a large-scale budget pressure. To mitigate against this price increase it was agreed to procure an Independent Connection Supplier (ICP) whose prices were cheaper and whos method of working differed from NPG's. This resulted in the use of an additional local company, Quantum Connections, to deliver this element.

21. Column replacements were originally expected to be in the region of 8,500 based on the existing inventory of the number of columns over 25 years of age which was the primary threshold used for the basis of column replacement. Throughout the project the age of the column was found not always to be the primary factor in determining whether a column needed to be replaced, with other factors such as location, material and environment also having to be considered. To ensure the lighting throughout the Borough met with the requisite British Standards it was also necessary to incorporate some additional columns. Therefore in total approximately 9,100 columns have been replaced or introduced due to the condition of the existing columns or the desire to comply with British Standards.

COMMUNITY IMPACT IMPLICATIONS

22. This scheme has assisted in contributing towards one of the key ambitions for the Council in terms of tackling climate change and assisting the Council in reaching the commitment to achieve a 21% reduction in carbon emissions by 2020. LED lighting contains no toxic materials and is 100% recyclable, and could potentially assist in reducing the carbon footprint by up one third. In addition the long operational life span means LED can save material thus helping towards a 'greener' future.
23. In addition the implementation of LED lighting will assist in the ambition of reduced crime and fear of crime, as white light helps people feel safer and more secure. Through superior colour rendering and higher perceived brightness, it makes it easier to distinguish objects, colours, shapes and other details. In particular facial recognition is easier, even from a distance, which goes a long way toward removing anxiety. White light when implemented in a uniform manner also gives the most even illumination with no intimidating areas of shadow.

FINANCIAL IMPLICATIONS

24. The mass replacement scheme will see energy costs associated with street lighting reduce significantly based on usage calculated on pre LED installation. As detailed maintenance will also be reduced due to the make-up of LED's and that they are powered by numerous nodes rather than just a singular illuminated unit.

FUTURE OPPORTUNITIES RELATED TO DISTRICT HEAT PROJECT

25. Going forward there may be a couple of synergies with the Council's district energy initiative. The outline financial structure of the Billingham project effectively creates a financial hedge against rising power prices i.e. the value of the Billingham project increases as gas (& therefore power) prices go up which would offset any rise in the cost of electricity for street lighting. Secondly the council is exploring the potential to purchase power directly from existing CHP units located in the area. This power could be used for electric vehicle charging or for the Council's wider power requirements.

LEGAL IMPLICATIONS

26. The Highways Act 1980.

RISK ASSESSMENT

27. This report is categorised as low risk.

COUNCIL PLAN POLICY PRINCIPLES AND PRIORITIES

28. The report impacts upon the Policy Principles and Priorities in the Council Plan.

EQUALITIES IMPACT ASSESSMENT

29. This report has not been subject to an Equality Impact Assessment.

CORPORATE PARENTING IMPLICATIONS

30. This report does not include any corporate parenting implications.

CONSULTATION INCLUDING WARD/COUNCILLORS

31. As part of the lantern mass replacement scheme all respective local Ward Councillors were informed on the proposed street lighting design on their ward area and given the opportunity to influence the design where appropriate and should they wish to do so. In addition all Councillors were presented with a detailed briefing note to use as they deem fit.

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Education related

No

Background Papers

N/A

Ward(s) and Ward Councillors:

All

Property

N/A

