

SOLIHULL METROPOLITAN BOROUGH COUNCIL

Report to:	CABINET MEMBER FOR TRANSPORT AND HIGHWAYS
Meeting date:	19 th JANUARY 2012
Report from:	HEAD OF HIGHWAY SERVICES
Report Author/Lead Contact Officer:	<p>Report Author: Darron Allen/Ed Bradford</p> <p>Telephone: 0121 704 6512/6477</p> <p>email: dallen@solihull.gov.uk ebradford@solihull.gov.uk</p> <p>Lead Contact Officer: Adrian Matthews</p> <p>Telephone: 0121 704 6512</p> <p>email: adrianmatthews@solihull.gov.uk</p>
Wards affected:	All
Public/Private report:	Public
Exempt by virtue of Paragraph:	N/A of Schedule 12A of the Local Government Act 1972.

Subject/Report Title:

STREET LIGHTING - PILOT CENTRAL MANAGEMENT SYSTEM

1. Purpose of Report

1.1 To seek Cabinet Member approval for Officers to pilot a Central Management System (CMS) within the Borough, to allow the remote control and monitoring of street lighting units.

2. Decision(s) Recommended

- 2.1 That Cabinet Member notes the upgrade work undertaken by Officers in Newborough Road, particularly the energy savings and carbon reductions that have been realised.
- 2.2 That Cabinet Member approves a pilot using Zodion Lighting Ltd CMS equipment, to further investigate the suitability of dimming, trimming and potential switch off options in the Burnthurst Crescent , Caldeford Avenue, Knowlands Road, Lakeside Drive, Rushford Close and Whitemoor Drive area of the Monkspath estate as a primary

location (Appendix A)

- 2.3 That officers prepare a further report detailing the outcome of the CMS pilot and identify potential benefits from rolling out similar energy savings measures across the Borough.

3. Background

- 3.1 As part of an ongoing lamp replacement programme, Officers undertook work in March 2010 to enhance the existing street lighting in Newborough Road, Shirley West.
- 3.2 In response to concerns surrounding rising energy prices and the desire to reduce carbon emissions, Officers took the opportunity to fit the following:
- White light- 80 watt MBFU lamps have been replaced with a 60 watt white light source, which allows enhanced colour rendition.
 - Trimming- new photo cell controls have been fitted which turn the lights on 5 minutes later in the evening and turn off 5 minutes earlier in the morning, whilst still achieving full luminance levels during the on period.
 - Dimming – light output has been reduced on Newborough Road by 30% to a power value of 75% (50 watts) between the hours of midnight and 6am. This output exceeds that of the original MBFU lamps when they were at full power and with no visible difference.
- 3.3 The Newborough Road upgrade scheme has successfully demonstrated the potential for energy saving measures to be fitted to street lighting units. In response to economic pressures such as rising energy prices and environmental concerns about wasted energy and the effects of carbon emissions and light pollution, officers have been keen to explore the potential for rolling out similar energy savings measures across the Borough and have determined several potential options, including:
- switching selected road lights off;
 - lighting roads for part of the night only;
 - dimming the level of lighting during the early hours of the morning;
 - reducing the “burning” time of lamps in the evening and early morning;
- 3.4 A number of Local Authorities are currently considering similar options for reducing energy use and controlling carbon emissions. To help them realise their ambitions, Some authorities, including Birmingham, Dudley and Warwickshire, have taken the decision to invest in Central Management System (CMS) equipment. Such equipment, which would be fitted to each lighting unit, enables the remote switching and dimming of individual street lights, illuminated traffic signs and bollards through wireless technology and an encrypted web-based system. Through data exchanges with individual units, Officers would also benefit from receiving performance information. Fault reporting tools built into the system can provide early warning systems to enable maintenance planning, which could, for example, potentially lead to an extension in lamp life.
- 3.5 If such technology had been fitted on Newborough Road, Officers would be able to

remotely adjust the settings of individual units without the need to replace any equipment or to visit the location. Flexible dimming regimes could be established dependant on the day of the week or due to a special event. Power levels could also be adjusted due to the time of day or night, traffic flow, or in the event of an emergency brought back up to full levels immediately. Fault reporting tools within the system would indicate to officers when a unit has failed, or is malfunctioning. Such tools would reduce the need for officers to undertake night patrols to check on the condition of the units within the area, thereby saving the Borough further expenditure.

- 3.6 Given the flexibility that such a system offers, officers have been keen to explore the potential of CMS equipment in more detail. In order to further their understanding of CMS equipment, officers have recently undertaken some initial scoping work to determine the suitability of such systems for use within the Borough.
- 3.7 Visits to Warwickshire and Dudley have been carried out to learn from the experiences of both authorities and officers have also held informal initial meetings with 6 main suppliers of CMS equipment that are currently on the market. Whilst each of the systems is similar in that they allow remote dimming, trimming, switch off and monitoring, there are subtleties between each in terms of installation and every day use.
- 3.8 As a result of the above scoping work, officers understand that whilst it would be feasible to fit CMS equipment to street lighting units, illuminated traffic signs and bollards within the Borough, comprehensive upgrade works to lamps, lanterns and control gear contained within street lighting units across the Borough would need to be undertaken to ensure compatibility between the current lighting stock and any future CMS system.
- 3.9 For example, CMS equipment does not fully work with all types of lamp currently in use across the Borough. Whilst around two-thirds of lamps would be fully compatible with CMS equipment, the remainder would not be suitable for use with such equipment and would need to be changed. In addition, the fitting of CMS equipment is also dependant on the type of lantern within which the lamp sits; compatibility across our stock would be subject to thermal testing of individual unit types. To achieve full benefit from CMS equipment, electronic control gear should also be used within a street lighting unit. Currently, 95% of the Boroughs street lighting stock is controlled by traditional wire wound gear. Whilst such control gear would allow the switching of a street lighting unit via CMS equipment it would not allow dimming.

Next Steps

- 3.10 In order for Officers to fully understand the feasibility of a Central Management System for Solihull, it is recommended that Cabinet Member gives approval for a comprehensive pilot of such equipment to be undertaken within the Borough, over a period of 3 months.

Purpose of the pilot

- 3.11 The purpose of the pilot will be to allow Officers to test the public reaction to a remote dimming, trimming and potentially the switching off of street lighting units.

Area identification

- 3.12 A recent EU directive requires the phasing out of MBFU lamps by 2015, of which there are approximately 6,000 within the Borough. In order to ensure that value for money is obtained from the CMS pilot, and to assist officers in deciding on a suitable

replacement for the MBFU lamps, it is recommended that a pilot is undertaken in an area currently comprised of MBFU lamps.

3.13 Subject to approval from Cabinet Member and given the current street lighting inventory, officers would recommend that the Burnthurst Crescent, Caldeford Avenue, Knowlands Road, Lakeside Drive, Rushford Close and Whitemoor Drive area of the Monkspath estate be selected for a pilot area of 86 lighting units.

3.14 The benefits of selecting this area include:

- The opportunity to replace MBFU lamps
- The opportunity to test CMS technology on existing LED lamps
- The road layout is typical of other areas of the Borough, in that it includes through roads and side roads
- The area is self contained allowing for clear identification of road users
- The existing lighting columns have an expected future life in excess of 20 years

Evaluation method

3.15 A pilot would be evaluated against the measures set out in Table 1 below.

Item	Measured by	Success
Crime	Analysis of before, during and after statistics	No attributable rise in crime levels
Road traffic collisions	Analysis of before, during and after statistics	No attributable rise in road traffic collision levels
Public reaction to dimming, trimming and switch off policies	Perception surveys undertaken before, during and after	A positive response by the public to the policies piloted
Energy savings	Comparison between before and after statistics	A decrease in energy costs
Carbon reduction	Comparison between before and after statistics	A decrease in carbon emissions
Flexible lighting system	Ability to meet the localised and varying demands of stakeholders without incurring further costs	Ability to remotely control the lighting system

3.16 The completion of the CMS pilot, and the subsequent analysis of the results obtained from it, will enable officers to determine future areas and locations that may be suitable for a future Borough wide roll out. Any such future roll out will be the subject of a further report to Cabinet Member.

Equipment to be used

3.17 In light of compatibility with existing equipment already in use across the Borough, it is recommended that Cabinet Member invites Zodion Lighting Controls to provide pilot CMS equipment for use within the Borough.

3.18 It is important to note that the use of Zodion Lighting Controls Ltd for the pilot will not affect any future tendering process should a decision be made to roll out CMS technology across the Borough.

4. Evaluation of Alternative Option(s)

4.1 With expected increases in energy costs in the near future it is crucial that Officers consider ways that new technologies reduce the impact on existing budgets.

5. Reasons for Recommending Preferred Option

5.1 The pilot of CMS equipment will allow Officers to take an informed view when deciding on which technology will best fit the needs of the Borough, particularly regarding future budget savings.

6. Scrutiny

6.1 No reports have been taken to scrutiny at this stage.

7. Implications

7.1 **Policy/Strategy Implications** – Officers are currently producing a proposed strategy for street lighting across the Borough, covering a period of the next 10 years.

7.2 The work undertaken on Newborough Road and the findings of a CMS pilot will help inform the production of this strategy and any future work that may result from it.

7.3 The findings will also help inform the Council of the role that this technology can play in helping to contribute towards the £224,000 budget savings that have been identified for street lighting for the period 2012-15.

7.4 **Meeting the duty to involve** -Should the CMS pilot be successful and subject to Cabinet Member approval, a range of consultation and communication techniques will be employed to ensure all stakeholders are suitably engaged.

7.5 Consultation with relevant stakeholders will include:

- Ward Members
- parish councils;
- local residents;
- local businesses;
- staff and contractors
- emergency services (police, ambulance and fire and rescue);
- neighbouring local authorities;

- and other stakeholders such as environmental groups.

7.6 Methods will include:

- resident / stakeholder meetings: Meetings will be used to provide initial information about the proposals and seek views. Regular follow-up meetings with, for example, the emergency services will be used to keep the proposals under review.
- letters / newsletters to stakeholders: Advisory letters to stakeholders will be used to inform and request opinions. Subsequent to implementation, questionnaires will be used.
- press releases: through local (and national) media.
- local authority website: Web pages will include information such as location of the initiatives, FAQs and electronic feedback forms.
- staff and contractors: Given that many of our council employees have day to day contact with the public, it was considered important to ensure that staff and contractors are aware of the initiative and reasons for them.

7.7 Financial Implications

The upgrade work in Newborough Road has resulted in annual estimated energy saving of £213.00 from the trimming, dimming and lower wattage lamps in respect of the 16 new lamps that were installed

There are 6,000 MBFU lamps similar to those in Newborough Road on other residential roads in the Borough. Therefore, potential energy savings in the region of £80,000 per annum could be achieved if a similar lamp replacement programme were to be adopted throughout the Borough.

However, greater potential savings are likely to be achieved through the introduction of a Central Management System (CMS) throughout the Borough and a budget has been identified to support a pilot study to inform this option.

The likely costs of this pilot are as follows:-

CMS central system (hardware, training and set up costs)	£9,420
Upgrade of lamp, lantern and control gear (66 units at £400 / unit)	£26,400
Total Estimated Cost	£35,820

The costs of the above pilot study can be met from within the Street Lighting Budget in 2011/12.

7.8 Legal implications – There are a range of powers and duties that we are required to comply with as an authority. These include the following:

7.9 Highways Act 1980- Under the Highways Act 1980 or, in some instances the Public Health Act 1985 or the Parish Councils Act 1957, local authorities (Highway Authorities) in England are empowered to provide road lighting; however, they do not have a legal duty to do so.

- 7.10 Traffic Signs Regulations and General Directions (TSRGD) 2002- The Traffic Signs Regulations and General Directions (TSRGD) 2002 prescribe the designs and conditions of use for traffic signs to be lawfully placed on or near roads in England, Scotland and Wales. Among other matters, the Regulations stipulate requirements for the illumination of the road markings, traffic signs, etc.
- 7.11 Electricity at Work Regulations 1989 & BS 7671- Section 4 (2) of the Electricity at Work Regulations 1989 (EAW Regulations) states that “As may be necessary to prevent danger, all systems shall be maintained so as to prevent, so far as is reasonably practicable, such danger”.
- 7.12 British Standard, BS 7671, Requirements for Electrical Installations relates principally to the design, selection, erection, inspection and testing of electrical installations. These provisions were deemed to apply where columns still retained their service cable irrespective of whether the road lights were switched off.
- 7.13 Crime and Disorder Act 1998- Section 17 of the Crime and Disorder Act 1998 places a duty on local authorities to consider crime and disorder implications when discharging their functions. It states: “Without prejudice to any other obligation imposed on it, it shall be the duty of each authority to which this section applies to exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent, crime and disorder in its area.”
- 7.14 Road Traffic Regulation Act 1984- A restricted road is a road defined under section 82 of the Road Traffic Regulation Act 1984 which states: “there is provided on it a system of street lighting furnished by means of lamps placed not more than 200 yards apart”.
- 7.15 **Risk Implications**
- (a) The Corporate Risk Management Approach has been complied with to identify and assess the significant risks associated with this decision / project. This includes (but is not limited to) political, legislation and reputation risks.
 - (b) The Approach is not intended to eliminate all risks and not all the risks identified can be managed all of the time. Also, risks will still exist that have not been identified.
 - (c) However, based on the information provided, it is the officers’ opinion that the significant risks associated with this decision / project have been identified, assessed and arrangements are in place to manage them effectively.
 - (d) This assessment identified there are no net “red” risks that need to be reported.
- 7.16 **Fair Treatment Assessment** – A Fair Treatment Assessment has not been completed for the street lighting pilot in Newborough Road. It is expected that a Fair Treatment Assessment will be completed in the future for any policies relating to dimming, trimming or switch off that may be adopted within the Borough.
- 7.17 **Carbon Management/Environmental** - Focus on carbon reduction has gained significant momentum recently, for both economic and environmental reasons, with the implementation of the Carbon Reduction Commitment Energy Efficiency Scheme (CRC), where allowances are purchased by the local authority equivalent to their annual carbon emissions.
- 7.18 The installation of the new lamps in Newborough Road, in conjunction with the

trimming and dimming, has enabled a carbon reduction of 1200Kg per year.

7.19 The implementation of any future Borough wide dimming, trimming or switch off policy will result in a decrease in energy use, leading to further carbon reductions.

7.20 **Partner Organisations** – The Emergency Services and other relevant partner organisations will be consulted on the locations where pilot CMS equipment will be fitted and also on the development of a possible range of dimming, trimming and switch off policies.

7.21 **Safeguarding/Corporate Parenting Implications** – Children and vulnerable road users will benefit from the higher visibility from the improved street lighting levels.

7.22 **Customer Impact** –At the time of writing this report, Officers have received one comment on behalf of a group of residents of Newborough Road that praised the overall lighting scheme. However it is planned to carry out a survey in April to obtain residents feedback on a more formal basis.

7.23 The purpose of a CMS pilot is to test the public reaction to a dimming, trimming and switch off policy. Perception surveys undertaken before, during and after the pilot along with any complaints and compliments received will help develop the future Borough wide policy.

7.24 **Other implications**

7.25 None

8. List of Appendices Referred to

8.1 Appendix A – Monkspath CMS Trial Area

9. Background Papers Used to Compile this Report

9.1 None