

WIRRAL COUNCIL

CABINET – 1 SEPTEMBER 2011

SUBJECT:	STREET LIGHTING CENTRAL MANAGEMENT SYSTEM TRIAL
WARD/S AFFECTED:	ALL
REPORT OF:	DIRECTOR OF TECHNICAL SERVICES
RESPONSIBLE PORTFOLIO HOLDER:	COUNCILLOR HARRY SMITH STREETSCENE & TRANSPORT SERVICES
KEY DECISION?	NO

1.0 EXECUTIVE SUMMARY

- 1.1 The purpose of this report is to inform Cabinet of the conclusions made as a result of the Central Management System (CMS) Trial and to seek Cabinet approval for the use of the System to be extended across the Street Lighting Stock in the manner described by the policy statement. The report explains the energy saving potential of the Management System and the present situation regarding unmetered Street Lighting supplies and the Carbon Reduction Commitment Scheme.

2.0 RECOMMENDATION

- 2.1 That approval is given for adopting the policy set out in this report; to utilize the CMS and its facilities and to extend its use across the street lighting stock.

3.0 REASONS FOR RECOMMENDATION

- 3.1 The CMS will enable the Council to control the operation and energy consumption of those lights connected to the system. This will facilitate efficient use of the lighting system by ensuring that the amount of energy used is no more than is needed to provide lighting to an appropriate level.
- 3.2 The fault reporting facility of the CMS will remove the need for night inspection of lights connected to the system thereby improving the service to the public and reducing costs.
- 3.3 The fault prediction facility of the CMS will facilitate efficient management of lamp replacements particularly on high speed roads where traffic management is required resulting in less disruption for road users and cost savings resulting from reduced use of Traffic Management.

4.0 BACKGROUND AND KEY ISSUES

- 4.1 The CMS is a web hosted control system which provides monitoring, switching and dimming control of each individual streetlight. It can be accessed over the internet and it communicates with each light via the GSM mobile phone network and a local wireless network.
- 4.2 The CMS Trial involved the conversion of 200 existing street lights in New Brighton to enable them to communicate with the system. The lights included in the trial were located in the area bounded by Rowson Street, Seabank Road, Manor Lane, Magazines Promenade, Tower Promenade and Marine Promenade. The Trial ran from the end of October 2010 until June 3rd 2011 when the consultation period ended and was funded from the existing approved Street Lighting budget.
- 4.3 The aim of the Trial was to positively identify and evaluate the potential benefits of such a system particularly in relation to:
- Energy savings and eradication of “day burners”
 - Impact/savings associated with carbon reduction/carbon credits
 - Scrutiny and Inspection costs and in particular if successful how best to “roll-out” the system to the existing 9500 main road lighting units
 - Public perception of changes in lighting level

5.0 CONCLUSIONS DRAWN FROM THE TRIAL

- 5.1 The energy saving achievable will be dependent upon the existing level of illumination for any given stretch of road. The amount of 40% claimed by the manufacturers is achievable but that would only be on a section of road that was presently overlit. More typically the energy saving will be in the range of 14% to 30% when the full range of energy reduction facilities are deployed.
- 5.2 The usual cause of “day burners” is photocell failure. The photocell is removed when the CMS is installed hence photocell failure will no longer be an issue. The other cause of “day burners” is wiring faults. The CMS identifies these and automatically initiates a repair request.
- 5.3 Unmetered street lighting supplies have been removed from the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEE) therefore there is no immediate impact/saving associated with carbon reduction. Carbon credits were removed from the CRCEE under the 2010/11 Government spending review. It is unlikely that unmetered street lighting will come within the CRCEE before April 2013.
- 5.4 Maximum benefit will be derived from rolling the CMS out to lights that have the highest energy consumption. The lighting in each road will have to be assessed and the design process followed to determine the

appropriate level of dimming. For Streets where the existing lanterns are predominantly less than 10 years old, conversion of the existing lantern should be a viable option. In other instances the solution will be to replace the entire lantern.

- 5.5 From the limited response received from the public consultation (refer Section 9.0) with residents it would appear that changes in the operation of streetlights in the area were either un-noticed or considered insignificant by almost all of the residents.

6.0 PROPOSED DIMMING POLICY

- 6.1 There is no statutory requirement for the Authority to provide lighting. While the provision to provide lighting is a power and not a duty, the Authority has a duty of care to the road user. The standards generally used as guidance when designing a street lighting scheme are BS EN13201:2003 and BS 5489-1:2003. These documents make the specific point that the parameters used, and thus the lighting classes determined can vary through the night.
- 6.2 It is neither practicable nor desirable to set a standard dimming level to be implemented throughout the Borough.
- 6.3 To ensure that the safety of road users is not compromised by the operation of variable lighting, the design process should be undertaken for each situation where the lighting level is varied. It is proposed that the requirement is met by operating the policy described in the following statement.
- **Consideration will be given to dimming lighting at times of least need wherever feasible.**
 - **New lighting systems are designed in accordance with the requirements of BS EN 13201 – 2003 and BS 5489 –1:2003. Before any dimming regime is introduced on existing lighting, the same design process as for new lighting will be followed in order to determine the appropriate lower level of lighting.**
 - **This process will take into account local conditions that prevail and should ensure that the safety of residents and road users is not compromised. The use of dimming will ensure that no street lights will be switched off.**

7.0 RELEVANT RISKS

- 7.1 Adopting this policy and using a CMS will enable the authority to reduce its carbon emissions and manage its energy consumption without risk to the service

- 7.2 To make a significant impact the CMS must be rolled out across a sizeable proportion of the street lighting stock. The energy savings produced will be proportionate to the level of investment.

8.0 OTHER OPTIONS CONSIDERED

- 8.1 Dimming as a stand-alone feature by installing pre-programmed control units. Such systems are not usually adjustable once installed and can only carry out a single dimming step. They have no metering capability and no other energy saving facilities.
- 8.2 Switching off lights was not considered to be an appropriate course of action for a predominately urban borough. There would also be the risk of litigation in the event of an accident at a site where the lights had been switched off.

9.0 CONSULTATION

- 9.1 Questionnaires were sent out to 730 addresses within the trial area. Residents were informed that they resided in the trial area and that the system allowed the Council to remotely control the brightness of the streetlights and the times that they switched on and off. The questionnaires gave the recipients the opportunity to comment on the performance of street lighting in their own road and roads in the surrounding area during the trial period.
- 9.2 Responses were received from 59 addresses. Only 3 respondents considered that the lighting within the trial area was not bright enough.

10.0 IMPLICATIONS FOR VOLUNTARY, COMMUNITY AND FAITH GROUPS

- 10.1 There are no specific implications in this report for voluntary, community or faith groups.

11.0 RESOURCE IMPLICATIONS: FINANCIAL; IT; STAFFING; AND ASSETS

- 11.1 Following previous energy efficiency reports to Cabinet on 9 July 2008 and 23 July 2009 a £310,000 reserve was set up to fund street lighting initiatives. It is now proposed to fund the above programme from this reserve in the sum of £210,000. This funding will be used to roll out the CMS, on a larger trial, to 900 streetlights on main traffic routes, which will be more representative of the benefits which can be achieved from CMS and thereby also providing the facility of dimming as originally intended.
- 11.2 The full year effect of the resulting saving on this second trial on main roads is estimated at £35,000 p.a. and will reduce the effect of the anticipated November 2011 increase in electricity tariffs. In this way

the cost of the investment would be recovered by 2019. Additional savings estimated at £3,000 p.a. would be made in reduced Carbon Tax from 2014 onwards. It is proposed to report to Cabinet on the outcomes of this larger trial during 2012/13, from which a comprehensive 'Invest to Save' bid will be developed for introducing CMS to appropriate sections of the remaining lighting stock; and in particular the approximately 14,000 remaining lighting units on main roads.

11.3 Lighting on the initial trial at New Brighton under the control of the CMS, was restored to a normal operating regime at the conclusion of the trial. If Cabinet approves the recommendations of this report then dimming regimes for that lighting can be re-introduced in accordance with the policy. The resulting annual saving arising from this will be £1,300 in 2012/13, which will again be used to offset the anticipated November increase in electricity tariffs.

11.4 There are no additional staffing implications with these proposals.

11.5 There are no additional IT implications with these proposals.

12.0 LEGAL IMPLICATIONS

12.1 There are no specific legal implications associated with this report.

13.0 EQUALITIES IMPLICATIONS

13.1 It is recognized that dimming of lights will need careful consideration so as not to disadvantage the various groups who require high levels lighting on health & safety grounds. However, the dynamic control offered by a CMS would allow easy adjustments to be made to accommodate any special requirements.

14.0 CARBON REDUCTION IMPLICATIONS

14.1 By ensuring that lights are operated at maximum efficiency and that light levels are maintained at the lowest appropriate to the situation and pedestrian/traffic flows, CO₂ emissions will be minimized and the carbon footprint reduced.

There is no specific carbon budget for the street lighting asset operated by Technical Services.

14.2 Removing the need for night inspections and using the fault predicting facilities of the system will reduce the vehicle usage bringing about a reduction in vehicle emissions

15.0 PLANNING AND COMMUNITY SAFETY IMPLICATIONS

15.1 Lighting works of the nature proposed under this scheme are exempt from planning consent requirements.

15.2 The proposed Dimming Policy should ensure that the light levels never fall below those recommended in BS5489:2003 and accordingly community safety should never be compromised by the implementation of any dimming regime. There will be situations where the system will be used to improve Community Safety for example by increasing illumination in the vicinity of Theatres, Sports Venues or Late-Night Shopping Centres when the amount of traffic may be increased for short periods to a peak time level.

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REFERENCE MATERIAL

The information used in the preparation of this report was obtained in consultation with the Council's Technical Services Department. No other background papers have been used in the preparation of this report.

SUBJECT HISTORY (last 3 years)

Council Meeting	Date
Cabinet report – Electricity Metering For Streetlighting By Central Management System	23 July 2009