

ECONOMY AND ENVIRONMENT OVERVIEW AND SCRUTINY PANEL 5 MARCH 2019

STREET LIGHTING

Summary

1. The Panel will receive an update on Street Lighting as part of its work programme, following an overview last year. The update will include progress with LED roll-out, outcomes so far from the concrete column survey and other related areas raised during the previous discussion.
2. Officers from the Economy and Infrastructure Directorate have been invited to attend.

Background

3. The Panel received an overview of Street Lighting during its meeting on 7 March 2018. The Report and Minutes of that discussion are available on the Council's website:
<http://worcestershire.moderngov.co.uk/ieListDocuments.aspx?CId=388&MId=2258&Ver=4>
4. The Panel will recall that the Street Lighting service is led by Worcestershire County Council and delivered by the Council's Lighting Maintenance contractor, Prysmian, who is responsible for maintaining all of the County's street lights.
5. Worcestershire County Council has a duty of care under the Highways Act 1980 to maintain a safe highways network, including street lighting and illuminated signs and bollards. This is not a duty to provide lighting, but it does mean that all lighting and sign installations must be maintained in a safe condition.
6. The street lighting service in Worcestershire provides benefits to the communities of the County in many ways. Reduction in night-time accidents and reducing both crime and in the minds of many people, fear of crime. The economic development contribution to towns in the County cannot be under-estimated, good street lighting engenders a feeling of well-being by enabling people to continue their business and leisure activities during the hours of natural darkness. Recent Public Realm initiatives in many of our towns have included elements to upgrade the street lighting and this helps to improve the night-time environment.
7. The Worcestershire County Council street lighting service consists of a small team of specialist WCC staff with expertise to enable effective operation of the service this is supplemented where required by the current term street lighting Contractor, Prysmian Cables and Systems Limited, and Jacobs. The support given by the two external suppliers includes assistance with specific project management, undertaking new designs, additional lighting engineer capacity.

8. The street lighting service work with other highway teams within the Economy and Infrastructure Directorate when working on projects, highway safety schemes and new developments together with regular engagement with the Liaison Engineers regarding street lighting matters raised by Local Members.

Service Aims and Objectives

9. The aim of Worcestershire County Council's Street Lighting service is to create a safer and more secure night-time environment by providing energy efficient and cost effective system of street lighting and illuminated signs.

10. The objectives of the street lighting service are primarily to:

- Ensure the safety of the public, contractors and staff
- Provide a high quality, cost effective service. All new lighting installation are specified to use the latest energy saving and effective LED lanterns resulting in energy saving and reduction of the carbon footprint
- Reduce crime and fear of crime
- Minimise environmental impact. The new LED lanterns provide very controlled distributions of light with almost zero light loss above the horizontal plane
- Implement best practice in systems and operations.

Street Light Part Night Switch Off

11. The Street Lighting Initiative or 'part night switch off' as it became known, was approved by Council in February 2014 and was rolled out across Worcestershire in residential areas with the project being completed at the end of 2016.

12. On average two out of three of the less efficient sodium lamps have been switched off between midnight and 6am (GMT). In total approximately 16,000no lights have been subject to this initiative resulting in a reduction in the use of energy (and therefore cost savings) and savings in carbon emission charges.

13. It is important to note that major traffic routes were exempt from the project. On average one in three lamps in the areas subject to switch off remain lit all night and these tend to be at more strategic locations such as on bends, junctions, near steps and other key sites. The objective was to achieve savings whilst still retaining a reasonably consistent and spaced distribution from the lights left on.

Low Pressure Sodium Lanterns

14. Low pressure sodium (SOX) lighting was introduced in the 1970's and quickly replaced the previous lamp type based on mercury. SOX lamps provided a 50% decrease in energy compared to other lighting around at the time. Quickly it became the standard light source in the UK and Europe.

15. Since this time alternative light sources have been developed including High Pressure Sodium, ceramic metal halide and most recently LED. Both High Pressure Sodium and ceramic metal halide have very limited application compared to LED.

16. Over 20,000 of the County's lanterns are Low Pressure Sodium (SOX). As part of the existing Term Lighting Contract these lanterns are bulk changed after a set number

of hours to prevent (as far as possible) 'bulb failures'. This has proven to be the most cost effective way of dealing with maintenance of this type of lantern.

17. With the advent of LED lanterns, the call for these SOX Lanterns has diminished and the, already limited number of, manufacturers have significantly reduced the number they produce to the point where there are implications on supply, even with significant advanced orders being placed by our Contractor. Working with the Contractor we have agreed a new interim maintenance strategy to cope with any 'outages' which replaces these SOX lanterns with an LED equivalent.

18. There are a significant number of SOX lanterns atop of steel columns that are in good or reasonable condition. It is therefore feasible and cost effective to simply change the lantern to an LED type and retain the existing column.

Street Lighting Programme – Phase 2

19. The next phase of the Street Lighting Programme, beyond the part night switch off, and the 2018 approval of the Highways Infrastructure Investment Fund makes provision for the roll out of two significant initiatives. The first helps deal with the ageing concrete column issue (see below) in addition to facilitating new LED lanterns, with the other replacing existing (relatively) low efficiency lanterns with new LED stock on existing steel columns.

20. The Lighting team were asked to deliver the LED roll out and concrete column replacement project within two years rather than three. The reasons for this being twofold: To minimise the safety risk posed by the defective concrete columns and to maximise delivery of energy savings.

Progress to Date

21. As of August 2017 Worcestershire County Council maintained 49,819 lighting columns. Of this, 10,884 (24%) were shown on the inventory as constructed of concrete around steel reinforcing. These were predominantly installed in the 1960's and 70's.

22. Recognising the service life, a detailed survey of the concrete columns on the Worcestershire County Council network was carried out and completed in 2018. The condition of the stock has been ranked from 1 (good condition) to 5 (requires immediate attention).

23. The detailed programme of replacing the concrete columns with both a new steel column and an LED lantern is largely driven by the requirement to deal with the worst first.

24. This programme was developed (with category 5 columns being dealt with immediately and category 4s by the end of April 2019). The remainder of the Concrete Column replacements being co-ordinated with 2019/20's footway reconstruction programme to avoid clashes.

25. The results of the Concrete Column survey are shown below:

10,163 – Inspections ordered

954 – Could not be carried out as the columns were either Steel, missing or unable to be accessed due to trees and bushes. These are being assessed individually, steps taken to update asset record and/or to de-veg to gain access for inspection.

9 – Classification 5 (being in the worst condition)
 317 – Classification 4
 2,007 – Classification 3
 6,877 – Classification 2

26. From these results there are 2,333 concrete columns which have been indicated as in need of replacement or repair within the current period of funding. As there is no cost effective 'repair' available, replacement costs equate to circa 55% of the allocated £4m programme funding.

27. To this end a significant extra resource has been mobilised by Prysmian and a summary of the results are shown below.

Street Lighting Programme: HIF Project only

Ref	Where	What	Unit	2017	2018				2019	
					Qtr1	Qtr2	Qtr3	Qtr4		
					1 April - 30 June	1 July - 30 Sept	1 Oct - 31 Dec	1 Jan - 31 Mar		Fitted to Date
TOTAL										
		Concrete Columns	Quantity	0	200	30	308	245		783
			Cost - £	£0.00	£240,000.00	£36,000.00	£369,600.00	£294,000.00		£939,600.00
		Lantern replacement with LED	Quantity	1000	0	1213	2195	2144	4481	5552
			Cost - £	£180,000.00	£0.00	£218,340.00	£395,100.00	£385,920.00		£999,360.00
		Total Cost	Cost - £	£180,000.00	£240,000.00	£254,340.00	£764,700.00	£679,920.00		£1,938,960.00
		Energy Saving	kWh	9736.58	9736.58	177978.955	358392.055	342068.965		897913.135
			Cost - £	£1,168.39	£1,168.39	£21,357.47	£43,007.05	£41,048.28		£107,749.58
		Maintenance Saving	Cost - £	£40,000.00	£2,000.00	£70,902.25	£76,512.25	£71,272.25		£260,686.75
		Total Revenue Saving	Cost - £	£41,168.39	£3,168.39	£92,259.72	£119,519.30	£112,320.53		£368,436.33

28. The percentage of WCC lighting asset that is now LED has risen to 22%.

29. It should be noted that the LED lighting industry is moving with some pace and new products are frequently becoming available. A good example of this has been a new 'retro fit' lamp becoming available to directly replace an old SOX lamp in an existing lantern since the last Scrutiny meeting.

30. We have started using this new product where appropriate. Where this has been the case the 'control gear' is not changes and therefor if the lighting point was subject to part night switch off, it will still be so. This should enable a better response time in repairing simple SOX lamp faults going forward

2019/20

31. Work will continue to replace concrete columns in 2019/20, focused on the remaining Category 3 columns.

32. By the end of 2019/20 it is expected that c35% of the Worcestershire County Council Street Lighting will have been converted to LED resulting in planned reductions in energy use and cost.

Fault Reporting and Repair

33. Customers report faults through the Worcestershire Hub, online, or directly through the Street Lighting email address - streetlighting@worcestershire.gov.uk

34. The lighting team process all the Contractor will then endeavour to repair the faults within the specified time. High priority faults include reports of street lights or illuminated signs damaged as a result of road traffic collisions or where column doors are missing exposing the electrics. Faults of this type are sent through to the contractor for a 1 hour target response. End of day attendance of the contractor include reports of sections of street lighting off, unlit illuminated bollards or illuminated regulatory signs. All other faults, e.g. individual lights reported unlit or continuously burning, are put through on a 7 day response to the contractor. On some occasions this timescale cannot be met. An example of this would be when the fault lies with the Western Power feed, not our Lighting Asset. It can take up to 28 days for Western Power to attend and rectify and this is beyond our control.

35. In some instances the exact location of the fault or the point number is not clear from the report received and so the Street Lighting team will contact the customer to confirm details. The Street Lighting team endeavour to keep customers informed of the fault repair, particularly if the faults are due to supply problems involving Western Power or if it is a fault with a concrete column on a footpath where access is difficult.

36. Current "standard" response times have been temporarily extended from 7 to 14 days (emergency responses for 1 hour and end of the day attendances are unchanged). This has come about for a number of reasons (1) to enable the effective "clustering" of works, (2) more stringent H&S regulations regarding the use of ladders, causing some complexities regarding access in some instances, (3) supply of low pressure sodium (SOX) lamps and the installation of LEDs taking slightly longer than SOX replacements and (4) higher volume of reported faults in the winter months. Once the backlog has been resolved the 7 working day target will be restored.

37. One area we have identified for improvement is specific feedback to members of the public. The service will soon move to an updated version of the Lighting database enabling real time updating of asset repairs etc. This should result in better information being fed back to residents.

Electric Vehicle Charge Points

38. There has been some reference and interest in the use of WCC lighting assets as Electric Vehicle charging points. This was covered in a recent question to Council on 8 November 2018 and a response provided by the Cabinet Member with Responsibility, available on the Council's website [here](#). There would be a number of significant issues to address if this is to be considered, including:

- Complete re-cabling of the entire Lighting network to cope with much increased loading
- Capacity of electrical supply to residential streets;

- Some columns will not be suitable
- Many columns sited at rear of footways resulting in trailing cables
- Risk of exposed cable-ends should they be cut and stolen
- Columns widely spaced.

Purpose of the Meeting

39. The Panel is asked to:

- consider and comment on the latest information on Street Lighting
- determine whether any further information or scrutiny is required at this stage
- agree any comments to highlight to the Cabinet Member.

40. In doing so, the Panel may want to refer to the following queries referred to during the previous discussion:

- has there been any effect on crime rates following the partial switch off?
- progress on the £4m over three years' capital works
- what feedback is given to residents who report a fault?
- latest Key Performance Information on replacing faulty lights
- how many (as a percentage of the total) are now LED?
- what is the policy on switch off? ie are certain roads exempt
- what is the latest thinking on electric charge points?
- how are charge points maintained and how reliable are they?

Contact Points

County Council Contact Points

County Council: 01905 763763

Worcestershire Hub: 01905 765765

Specific Contact Points for this report

Emma James / Jo Weston, Overview and Scrutiny Officers, Tel: 01905 844964 / 844965

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Background Papers

In the opinion of the proper officer (in this case the Head of Legal and Democratic Services) the following are the background papers relating to the subject matter of this report:

- Agenda and Minutes of:
- Economy and Environment Overview and Scrutiny Panel on 7 March 2018
Cabinet on 6 February 2014, available [here](#)
- Council on 8 November 2018, available [here](#)

Minutes and Agendas are available on the Council's website at

<http://worcestershire.moderngov.co.uk/ieListMeetings.aspx?Committeeld=388>