

# Wiltshire Council LED Street Lighting Project



November 2019

## Wiltshire Council LED Street Lighting Project

There are almost 45,000 street lights on Wiltshire Council's highway network. Energy costs have risen sharply in recent years, and are likely to continue to rise in the longer term. The annual cost for street lighting energy is currently over £1,900,000, and with current budget restrictions these costs are becoming increasingly unaffordable.

Light Emitting Diode (LED) lighting is energy efficient and has reduced in price considerably in recent years. At present, only 3% of the Council's street lighting is LED lighting, with the majority being the older low pressure sodium (SOX) or high pressure sodium (SON) units. The SOX units are becoming obsolete and going out of production, and are becoming increasingly difficult to obtain. Keeping the older units operating is no longer possible in the longer term.

LED lights use considerably less energy than the older SOX and SON units. A major advantage is that LED lights provide the opportunity to dim the lighting during off-peak periods to further reduce energy consumption. LED lighting dimmed between 8.00pm and 6.00am, with additional dimming after 11.00pm, would typically reduce energy consumption by 69% compared to the current SOX units.



The heritage style and other special units will be converted separately at the end of the programme. Their external appearance will remain unchanged.



It is proposed to convert most of the Council's street lighting to LED units over the next two years. The cost of the project is £12,295,000 and it is expected to have a pay back in 11.88 years, but this could be substantially sooner depending on future energy costs.

## Proposed Scheme

The conversion to LED lighting starts in October 2019. The lights will generally be converted based on the current programme of cyclic routine maintenance and testing of the street lighting, which is based on geographic areas. The indicative programme is set out below.

Area	Indicative Programme
Chippenham	October – December 2019
Amesbury	January 2020
Salisbury/Wilton	February – April 2020
Westbury	May 2020
Melksham	June – July 2020
Devizes	August – October 2020
Calne	November – December 2020
Trowbridge	January – February 2021
Warminster	March 2021
Downton	April 2021
Mere	May 2021
Marlborough	June 2021
Royal Wootton Bassett	July 2021
Malmesbury	August 2021
Corsham	September 2021
Bradford on Avon	October 2021

The programme will be reviewed as the project progresses and may be revised as resources become available.

## Frequently Asked Questions

### 1. What are the benefits of LED lighting?

The advantages of LED lighting include:

- LEDs are much more efficient and use much less electricity than other lamps or bulbs for similar output, reducing energy costs.
- Have extremely long lives compared to traditional lights.
- Produce very little heat.
- Produce much fewer carbon emissions through energy generation.
- Contain no mercury.
- Can operate effectively in both cold and hot environments.
- Produce a white light to enable the human eye to see natural colours at night.
- Are much more directional than other lights, reducing 'sky glow' and glare.
- LEDs are instantaneous and function at full output when switched on. No warm-up times as with most street lighting.
- They can be dimmed at off peak times.
- They provide improved uniformity of light.
- Variation in colour temperatures are available for specific applications.

### 2. Does the Council have to provide street lighting?

There is no duty on the Council to provide street lighting, but the safety and other benefits for the local communities are appreciated, and Council's have traditionally provided street lighting.

### 3. Why not turn off the street lights instead?

Street lighting has benefits in terms of road safety and public safety. It supports the night time economy and helps reduce the fear of crime.

### 4. Why make such a massive investment in street lighting?

Energy costs have been rising enormously in recent years and, with the other services the Council has to provide, the cost of energy for the street lighting is becoming increasingly unaffordable. The savings in energy costs will help pay for the new lighting, and the project will significantly reduce the Council's carbon footprint.

### 5. Why change the existing lights?

There are massive energy savings possible with the modern units. Older low pressure sodium lights will no longer be in production from 2020, and it will be necessary to replace them eventually.

## **6. How much energy will the project save?**

The project is expected to reduce the annual energy consumption of the Council's street lighting from 12,977,500 KWh to 5,262,291 KWh. The reduction in energy for each light will vary according to the unit, but is likely to be as much as 69% in some cases.

## **7. Will it reduce the Council's carbon footprint?**

There will be a significant reduction. It will reduce street lighting CO<sub>2</sub> by 1,770tCO<sub>2</sub> (from 4,950tCO<sub>2</sub> to 3,180tCO<sub>2</sub>.)

## **8. Will the new lights give the same light as the existing units?**

They will provide similar lighting levels, but the older sodium lights have a greater upward light proportion and much more light spread. This can cause pollution of the night sky but may have benefits in illuminating adjacent properties. It is not always possible to do an exact like for like replacement given the different types of lighting, and the intention is to provide something appropriate for the location.

## **9. What LED lighting units will be used?**

It is proposed to use LED units with what is known as a colour temperature of between 2700k and 3000k for most of the lights, which are often referred to as warm. Some other LED lights have a higher colour temperature of 4000k which some campaigners have had concerns about. The units to be used for this project will be Axia 3 lights manufactured by Urbis Schreder.

## **10. Will the new lighting conform to modern design standards?**

The existing street lighting has been installed over the years to varying design standards. The intention is to provide an appropriate level of lighting with the new units, but the use of the existing columns will mean that some deviation from current design standards will be inevitable.

## **11. Will the lighting be turned off for part of the night?**

Some street lights in towns and villages are currently turned off for part of the night. The new lighting is much more energy efficient, and it is not currently intended to turn them off at night, but they will be dimmed to lower levels. Where requested consideration will be given to continuing the part night operation of particular units if it has local support.

## **12. Will all the lighting be dimmed?**

It is proposed to dim most of the lighting between 8.00pm and 6.00am, with additional dimming after 11.00pm. Lights at zebra crossings, areas with greater highway safety requirements, and areas with significant night time activity would generally not be dimmed.

**13. Will the new LED lights still light up my driveway and doorway?**

Street lighting is intended to light the adopted road and pavement. The lighting of private property is the responsibility of the homeowner or tenant.

**14. My street seems a lot brighter since the new lights have been fitted. Why is this?**

Many Wiltshire Council streets will have been illuminated to differing standards throughout the years. With the introduction of LED lighting a review of the lighting requirements based on location, usage and other factors will be applied. This may result in an increase in light output and light level on the street, but at a level which is appropriate and compliant with standards.

Where there is an increase in light levels in some streets, the LED equipment will still provide energy savings in comparison to the old lights, which were very energy inefficient

**15. My street seems darker since the new lights have been fitted. Why is this?**

Many Wiltshire Council streets will have been illuminated to differing standards throughout the years. With the introduction of LED lighting a review of the lighting requirements based on location, usage and other factors will be applied. This may result in a reduced light output but one which is appropriate and compliant with standards.

**16. Will the lighting columns be replaced at the same time as the lanterns?**

Most columns will not be replaced. However, those that are in poor condition or damaged will be replaced as necessary.

**17. Will the lighting have motion sensing?**

No. It is important to avoid sudden variations of lighting levels for drivers as it takes time for the eyes to adjust and it could be dangerous.

**18. Could solar powered lighting be used instead?**

At present solar powered units on the columns are generally not suitable, but the situation may change as technology develops.

**19. Will there be a reduction in Council tax?**

No. The scheme will save money in the longer term and will help reduce the potential scale of future increases and avoid having to turn lights off.

**20. What are other Council's doing?**

Many other authorities have already converted their lighting to LED units in order to save money, and others are likely to do likewise in the near future.

## **21. Why haven't the Council written to every resident?**

It would cost a significant amount of money to write to every individual household in the county, and as street lighting is not being removed or turned off it was not considered necessary.

## **22. Can changes be made to the new light once installed?**

The Council will be extending the existing central control and management system so that most of the county's street lights can be controlled remotely. This will allow some alterations to the lighting to be made in response to changing circumstances.

## **23. Will all lighting units be changed?**

The intention is to change nearly all the Council's street lights. Some of the heritage style or special units may be changed towards the end of the programme.

## **24. How long will it take to change each lantern?**

In most cases it will be just the lantern which will be upgraded, and usually this will take around 15 minutes. Where other ancillary works or the street lighting columns as well as the lantern need to be replaced, this will take longer. Some electrical connections may have to be undertaken by the electricity company and it will be necessary for them to complete the works.

## **25. What about Conservation Areas?**

In conservation areas the new lights will be coloured black as are many of the existing columns. The lights will have a 'warmer' appearing light. Lighting columns are not being replaced as part of this project unless they are unsafe. Should town councils or others wish to contribute to the cost it may be possible to replace existing columns with heritage style units or other enhancements.

## **26. What about Areas of Outstanding Natural Beauty?**

In Areas of Outstanding Natural Beauty (AONBs) the lighting will have the 2,700k warmer appearing light. Most units will be installed at 0° inclination to reduce light spill, with lighting levels dimmed later in the evening. The new lighting will reduce light spill and contribute to improving the dark skies.

## **27. Will my street be dark during the changeover?**

In most cases the conversion will be a quick operation done during the day. However, where columns have to be replaced some lights may be out of operation for a short period. Care will be taken to avoid creating large dark areas during implementation.

## **28. Will I be able to access my property while the work is done?**

Every effort will be made to ensure that roads remain open whilst we work. However, there may be very short periods when we need to control traffic to protect the safety of both the public and our workforce. If you need to access your property at any time during



the works, please inform the on-site team at the earliest opportunity and suitable arrangements will be made. Pedestrian access will be maintained at all times.

### **29. What about lights affected by trees?**

Where trees are blocking existing lighting, the trees will be pruned if appropriate. If they are in private ownership the tree owners will be approached regarding the works required. The work on the trees will be carried out by experienced operatives in accordance with environmental restrictions, taking into account the health of the tree, nesting birds, and any other restrictions. In some cases, relocation of the lights may be considered.

### **30. What happens to the old lights?**

In the short term some of the lanterns may be used as temporary replacements for other lights, but in the longer term they will all be recycled via approved methods in accordance with regulations.

### **31. How long will the new lights last?**

It is anticipated that the new units will last 20 to 25 years. The older lamps currently in use usually have to be changed every 3 to 6 years.

### **32. What consultation has taken place?**

As lighting is not being removed or turned off it was not considered necessary to hold public consultation regarding these proposals.

### **33. When will the changes take place?**

It proposed to start changing the units in October 2019, with the programme expected to take about two years.

### **34. Will the changeover be noisy?**

No. Generally it will be fairly quick to make the changes, with most of the work done during the day. If columns have to be replaced for safety reasons this takes longer and will require excavation to remove the old column, erect the new one, and transfer the electrical connection.

### **35. Will the new lights make the roads safer?**

As LEDs produce a natural white light, this enables the human eye to see in colour and with improved peripheral vision. This should make your road look safer and help reduce crime and the fear of crime.

### **36. Will the new lights be as bright?**

LED lights are slightly brighter at source than traditional light sources, but the ability to direct light will minimise glare. The directional qualities of the lanterns also reduces light

spill into and onto properties in the majority of situations as well as significantly reducing sky glow.

### **37. Are there health implications with LED lighting?**

There is no evidence this type of lighting is any more harmful than other forms of lighting in normal circumstances.

### **38. Will the lighting affect wildlife and the environment?**

The introduction of the new lighting will provide the opportunity dim and reduce lighting levels at sensitive locations. The scheme has the potential to have environmental benefits compared to most existing lighting types due to significant reduction in the emittance of UV light.

### **39. Do LED lights contain hazardous chemicals?**

No. The street lighting LEDs contain no hazardous chemicals, unlike most of the older lamp types.

### **40. Is it true LED lights produce blue light that can disrupt sleep?**

LEDs can produce more blue light than traditional discharge street lighting, but it is a tiny fraction of the content in natural daylight, and does not have any detrimental effect on people. Research indicates that light exposure needs to be very high in order to disrupt sleep patterns. Typical street lighting levels are less than light levels normally found in the home. The use of handheld phones, tablets and computers is likely to have a greater impact.

### **41. Are LED lights dangerous to the eyes?**

Studies examining the effect of LEDs and other sources on the retina have concluded that they do not present any risk to the retina for short exposure times. However, it is best to avoid looking directly at any light source, natural (including the sun), or artificial, for any length of time. The luminaires used have been specified to be no worse than Risk Group 1, which means no specific precautions need to be taken.

### **42. Why are the new lights not orange or yellow like the old ones?**

Some of the existing street lights use sodium which produces a light that appears orange in colour. LED lights produce a white light which makes it easier to recognise colours, improving visibility for road users and pedestrians. Unfortunately the low pressure sodium lights were not energy efficient and consequently are going out of production. With the ending of the manufacture of the older lights it will not be possible to make like for like replacements with regard to colour of the light.

### **43. Will I be disturbed by light shining through my windows?**

Older street lighting tends to spread light in all directions, including upwards. LED street lighting is less wasteful and directs the distribution of light down towards the road and

pavement. This helps in reducing any light intrusion into homes and gardens. Where appropriate additional dimming or shielding could be applied to further minimise concerns.

#### **44. Do the new lights contain 5G communications?**

No. The lights are controlled by a Central Management System and communicate to a base station via the Ultra Narrow Band (UNB) low bandwidth and low power wireless / radio communications on the open network frequency. The base stations communicate data to the central server via the usual mobile phone networks with 2G, 3G or 4G depending on what network is available. The same communications system has been operating in the towns in Wiltshire since 2014, and is now being extended to the rural areas.

#### **45. Why are LED's considered to be environmentally friendly?**

They are designed to have a long life span of around 20 to 25 years of near maintenance-free service. Unlike with conventional street lighting units, there is not the need for frequent lamp changes, which means there is reduced waste and unit attendance. This means:

- reduced annual energy consumption required to keep street lights illuminated;
- reduced disposal of old lamps containing harmful mercury or other materials;
- reduced fuel used and the accompanying pollution to service lights;
- reduced potential for disruption on the highway network through lane closures or road works to maintain the lights;
- less natural resources and energy used to produce replacement lamps for maintenance;
- less fuel used to transport the lamps from the factory (most likely overseas), to the distributor, to the contractor, to the job site.

For further information contact email:

[streetlighting@wiltshire.gov.uk](mailto:streetlighting@wiltshire.gov.uk)

Or write to:

Highways Asset Management  
Wiltshire Council  
County Hall  
Trowbridge  
Wiltshire BA14 8JN

Issues regarding street lighting can be reported through the My Wiltshire app or on-line at:

<http://www.wiltshire.gov.uk/mywiltshire-online-reporting>

