

Energy Reduction in Street Lighting

Background

The current energy budget for street lighting is currently £550,000. It is proposed that consideration is given to the use of LED lanterns and CMS technology in street lighting. The use of a white light source such as LED allows lighting levels to be lowered on the highway without a reduction in perceived illumination. LED's last longer than conventional lamps, 50,000+hrs compared to 16,000-24,000 hrs, this will give cost savings on lamp replacement.

The use of a white light source such as LED allows lighting levels to be lowered on the highway without a reduction in perceived illumination. Lighting levels on the highway can vary depending on its usage and time, levels on main roads can be reduced as traffic flow reduces and in residential areas on the importance, usage and accessing risk of poor lighting levels. The introduction of a remote monitoring system can optimise the requirements for each individual site and provide flexibility to alter dimming regimes, on and off timings in the future without further costs.

Energy prices are expected to rise in the foreseeable future and as Council funding reduces, this will put a strain on budgets to maintain service delivery and provide a safe environment for residents and visitors alike. Advances in Technology and future proofing of products would allow Torbay Council to plan ahead by using invest to save projects detailed in this report.

With the use of CMS technology, it allows settings to be altered from the office without site visits; it will also monitor the street lights advising whether lights are out, day burning and general performance of the light. This could provide extra saving through maintenance. Lighting levels can be reduced a number of times during the night to suit requirements this cannot be achieved with part night lighting, it is possible therefore to reduce energy by providing all night lighting and using LED technology. Switching on and off times can also be adjusted manually to save at least a further 30mins per unit per night, these features have been allowed for in the calculations

Further reduction in energy and carbon emissions which will reduce Torbay Councils contribution within the Carbon Commitment Levy depending on the future operation of this levy.

The use of a CMS system using lanterns with compatible gear will mean that each road or section of road can be lit to the required standard, and with the improvements expected in LED technology, adjustments can be made to existing lanterns to suit the improvements or changes in lighting standards.

Advances in LED technology are continually improving and will become the main light source for most features including road and area lighting. Various companies are now entering the market offering LED products but caution is required to ensure reliability, performance and longevity of the product due to the substantial increase in life of LED'S to the traditional light source. Market research and trials are being undertaken to ensure performance and value for money in product selection for the project.

Work has already been carried out with regard to the use of LED lanterns and CMS, new developments and capital works are designed and specified with LED lanterns. Manufacturers have been asked to provide samples, prices and performance data of their lanterns, trial sites at Rock Walk, St. Marychurch Precinct and Paignton Harbour have already been installed and assessed and further sites are programmed.

Proposed Option - Replace older Lanterns on main Roads with LED, convert modern lanterns to a white light source

- It is estimated that 961 lanterns would be replaced and 1091 converted to a white light source.
- The estimated capital investment is £0.515m with a repayment period of 15 years.
- The equipment in the modern lanterns will have to be taken into consideration to establish the extent and nature of conversion. In some instances lamp and lamp holder would only be changed in others replacement gear trays. It may be possible to use LED replacement gear tray but consultation with the manufacturers would be required to access their suitability. The average cost of replacement is used in the costs.

- There would be a slight inconsistency in lighting standards due to the different light sources.
- Consideration would be required as to whether CMS is also included in the converted lanterns to provide consistency in any dimming regimes proposed, and the compatibility of the lantern to receive the system although this is not considered to be a problem.
- Savings in maintenance and energy using CMS will be similar to that mentioned in Option 1, with additional savings achievable by fine tuning functionality of each street light.
- Estimated cost £515,338.00 (£47,985.18 per year repayment)

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| Total Annual saving | £ 97,203.93 |
| Maintenance saving | £ 1,182.03 |
| Net saving | £ 50,400.78 |

Future Options

The proposed scheme only covers older lanterns on main roads. If the proposed scheme is successful this concept can be applied to all main roads lanterns and residential areas. Future approval would be requested from Council.