apse membership resources

Briefing 15/43 August 2015

Findings from a report into the impacts of reduced street lighting.

To: contacts in England, Scotland, Wales and Northern Ireland.

Key issues
Long term study of impacts of reducing street lighting.
No convincing evidence of association between lighting adaptations and road traffic collisions.
Slight suggestion of an association between dimming and reductions in crime, particularly violent crime.

1. Introduction

In March 2014, Dr Phil Edwards from the Department of Population Health, London School of Hygiene and Tropical Medicine attended the APSE Highways and Street Lighting seminar to talk about the LANTERNS project as a study into the effects of changes to street lighting on traffic crashes and crime. The final report from the project has been published in the Journal of Epidemiology and Community Health.

The full report can be found here.

2. Background

The budget pressures all local authorities are facing alongside the need to reduce carbon emissions has prompted many local authorities to reduce street lighting. It is an obvious target for potential savings as the service is a big user of electricity, there is new technology available for deployment and investment in the lighting stock has been inadequate in many local authorities over recent years. However, there had previously been no evidence collected about the possible impacts on public health of the reduction of lighting which has been undertaken.

The project considered the effect of 4 street lighting adaptation strategies (switch off, part-night lighting, dimming and white light) on casualties and crime in England and Wales. The methodology included observational study based on analysis of geographically coded police data on road traffic collisions and crime in 62 local authorities. Conditional Poisson models were used to analyse longitudinal changes in the counts of night-time collisions occurring on affected roads during 2000–2013, and crime within census Output Areas during 2010–2013. Effect estimates were adjusted for regional temporal trends in casualties and crime.

62 of 174 local authorities approached in England and Wales responded with usable data and were included in the analysis.

3. Lighting strategies

Of the 62 local authorities, 5 (8%) had introduced switch off, 30 (48%) had introduced part-night lighting, 40 (65%) had introduced dimming, and 52 (84%) had introduced white light. The introduction of these street lighting adaptation strategies increased steadily from 2009 so that by December 2013, the local authorities participating in this study had implemented white light on a total of 7% of the total road km in the 62 participating local authorities; part-night lighting on 5%; dimming on 4%; and switch off on 0.4%.

4. Results

14 years of data on road traffic collisions in 62 local authorities was used without any convincing evidence for associations between street lighting adaptations and road traffic collisions being found.

The study did, however, suggest an association between some street lighting adaptations and crime with results overall suggestive of an association between dimming and reductions in crime, particularly for violent crime. These results may be interpreted as lending support to the hypothesis linking lower levels of visibility to difficulties in identifying 'suitable' targets from those on the street at night.

Results also suggested an association between white light and reductions in crime, particularly burglary, which may provide support for the credibility of mechanisms linking increased visibility or increased investment in local communities to reductions in crime. If reduced street lighting displaces pedestrian activity to better-lit streets, this might reduce the risks of victimisation and interpersonal crime on those streets, and increase guardianship on the better-lit streets.

The study claims that there is no evidence that reduced street lighting is associated with increases in road traffic collisions or crime nor that dimming the amount of light or switching to white light/LEDs may reduce crime in an area. As such it notes that when risks are carefully considered, local authorities can safely reduce street lighting, saving energy costs and reducing carbon emissions, without impacting negatively on traffic collisions and crime.

The study was unable to identify any evidence that any street lighting adaptation strategy was associated with a change in collisions at night. There was significant statistical heterogeneity in the effects on crime estimated at police force level. Overall, there was no evidence for an association between the aggregate count of crime and switch off or part-night lighting. There was weak evidence for a reduction in the aggregate count of crime and dimming and white light. Results suggested that in the aggregate, dimming and white light regimes were associated with reductions in crime, though estimates were imprecise.

As such the study concluded that there was little evidence of harmful effects of switch off, part-night lighting, dimming, or changes to white light/LEDs on road collisions or crime in England and Wales.

5. APSE comment

APSE was happy to support this study and help widen the number of local authorities involved. Studies to identify the impacts of strategies undertaken (whether street lighting related or otherwise) are a necessary, but not always provided, step in the process of justifying decisions about how public funds are spent and as such this study is welcome.

There are a number of factors which might impact on the analysis and the study did take account of these such as, changes in CCTV and speed camera provision, changes in modes of transport and changes in levels of walking and cycling. Equally the data relies on reported records of collisions and crime rather than the actual level, although this is a perennial problem when using this type of data.

Media coverage about the perceived negative effects of reduced lighting has been focused on specific incidents which are of course regrettable in themselves. However, it is an approach which means the fear of a possible crime or accident is based on an incident in another location which has been reported in the media. This report draws a virtual blank when looking for evidence of a link which the media often claims exists.
Officers undertake appropriate risk assessments as a matter of course when making the changes to lighting services noted in this report and will do so on a case by case basis. Nonetheless these findings will be a vital addition to their sources of information.

Clearly many factors need to be taken into consideration when applying a new approach to street lighting and the report notes some of them. The health and wellbeing benefits of reduced lighting such as improved sleep and being able to see the night sky are examples. The introduction of LEDs can change the quality and colour of lighting and improve visual acuity, and improve closed circuit television (CCTV) images so making criminals feel more conspicuous and so potentially deterring certain types of crime. Furthermore the movement of people from well-lit to unlit streets might reduce road casualties by reducing the potential for collisions as well as reducing the amount of 'natural surveillance' in an area, leading to an increase in crime.

Street lighting remains a fundamental public good and local authority provided front line service. The service needs to be reviewed regularly, as all public services do, and this is certainly happening. Evidence of the kind noted in this report is important as an input to the decision making process for investment and changes service delivery.

APSE fully supports this kind of study into the impacts of services and the outcomes of changes to them.

Phil Brennan
Principal Advisor