Cambridgeshire Research Group

Evidence regarding the impact of the street lighting on crime and anti-social behaviour

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Summary:

The context of this policy note is the proposed part-night lighting (PNL) scheme to be introduced by Cambridgeshire County Council in large parts of the County. Community Safety Partnerships have sought reassurance that the scheme will not have a negative impact on levels of crime and anti-social behaviour.

Having reviewed the research evidence about the use of streetlights and community safety the following conclusions can be drawn:

- Recently published research[1] has found no evidence of a relationship between the count of crime and streetlight switch off or part-night lighting.

- That the evidence pointing towards the limited benefit of streetlights in reducing crime cannot be reversed and used to argue that withdrawing lighting will result in an increase.

- The main academic evidence for the benefits of street lights such as that relied upon by the College of Policing relates to the mid-1990s at the latest, but also back to the 1970s. A time when crime was much higher than it is today making direct comparison to the current situation problematic.

- Previous research that has been completed on street lighting has been contradictory and subject to academic dispute.

- The best conclusion that can be drawn from the research literature is that the general benefit of street lighting in reducing crime is unproven but in very specific circumstances, where there is an existing crime hot-spot and current lighting is poor then improvements may prove beneficial.

- There is a strong association in minds of the public between the presence of lighting and a feeling of safety. However, recent survey evidence[2] suggests that despite this the introduction of part-night lighting won't change actual behaviour as other factors such as an area's reputation, personal feelings of vulnerability and time-specific circumstances (such as pub closing times) have a stronger influence.

- In the light of these findings it can be considered highly unlikely that the Cambridgeshire PNL scheme will cause an increase in crime.

[1] The effect of reduced street lighting on road casualties and crime in England & Wales: Controlled interrupted time series analysis, Steinbach et al, Journal of Epidemial Community Health, 2015
http://jech.bmj.com/content/early/2015/07/08/jech-2015-206012

[2] http://www.suzylamplugh.org/wpcms/wp-content/uploads/Perceptions-of-Safety-survey-FINAL.pdf

Policy Note: Evidence regarding the impact of the street lighting on crime and anti-social behaviour

Context

The context of this policy note is the proposed part-night lighting (PNL) scheme to be introduced by Cambridgeshire County Council in large parts of the County. Community Safety Partnerships have sought reassurance that the scheme will not have a negative impact on levels of crime and anti-social behaviour.

Several Councils in England have implemented PNL schemes. The Cambridgeshire proposal is to increase the period of the current streetlight dimming (either 8pm or 10pm until 6am) to all times and to turn off lighting, except main traffic routes, between midnight and 6am.

The paper considered if claims are supported by research and if there is consistency across the evidence base.

Introduction versus withdrawal

The evidence pointing towards the limited benefit of streetlights in reducing crime (discussed in detail later in this note) cannot be switched and used to argue that withdrawing lighting will result in an increase.

An inference cannot be drawn from the evidence pointing towards the benefits of street lights being introduced that withdrawing lighting will result in a reverse effect. Within the published research there is no evidence for such a conclusion. Such inferences are referred to within academic thought as 'deductive fallacy' or as representing a 'converse error' in reasoning.

In the case of the various street lighting studies there is a very real problem with comparison of circumstance. Generally, the studies show a benefit in reductions in crime with the introduction of street lights where places had pre-existing problems with high crime rates. In other words the improved lighting was introduced for a reason. Concluding that the reverse of the effects might be seen in areas where crime rates are generally much lower can be described as problematic at the very least.

General versus specific benefits

The main quoted evidence for the benefits of street lighting in reducing crime, as quoted by the College of Policing[3], is derived from a single academic paper. This paper was prepared by the authors[4] as a 'systematic review' of the evidence on street lighting and crime in 2008.

Broadly the study by Welsh & Farrington (2008) points to two different mechanisms by which street lighting improvements could prevent crime.

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[3] http://whatworks.college.police.uk/toolkit/Pages/Intervention.aspx?InterventionID=3

[4] Welsh, B., and Farrington, D.F. (2008). Effects of Improved Street Lighting on Crime. *Campbell Collaboration Systematic Review*. Campbell Collaboration: Norway.

1. As a situational crime prevention measure that focuses on reducing the opportunity to commit offences and increases the perceived risk.

2. As a method of strengthening informal social control and social cohesion through encouraging more use of the streets and investment in the neighbourhood.

Following a review of the literature the authors identified thirteen studies of street lighting improvements where the design of the study met certain criteria *"studies were included in this review if they had, at a minimum, an evaluation design that involved before-and-after measures of crime in experimental and (reasonably) comparable control areas."*

All the studies were carried out a considerable time before 2008. Of the thirteen evaluations, eight were from the USA (one from 1998, the others from the 1970s) and five from the United Kingdom (all from the 1990s). The dates for these studies are important as they point to the scarcity of recent evidence and also date from a time in the United Kingdom when crime was much higher[5]. The Crime Survey for England and Wales (CSEW) shows that crime was at its peak in 1995 (over 18 million incidents of crime against households and resident adults) and has since reduced by 63% to the current 2014 CSEW results of an estimated 7 million incidents.

It is worth considering at this point the local Cambridgeshire circumstances. Regarding the relative performance[6] of the County's Community Safety Partnerships (CSPs) for most crime types they are performing in-line with or better than their 'Most Similar' (comparator) areas nationally. As well as benefiting from the long term reductions in crime noted above the County has relatively low rates of crime. Within the context of the national research dating back to the 1990s, times with much higher crime rates, then there are probably few if any geographic areas in Cambridgeshire where changes in street lighting could conceivably make a difference to crime rates today.

The details of each of the 13 studies considered by Welsh & Farrington (2008) are different. Of the American studies, four showed that street lighting had a desirable impact on crime whilst four showed that there was no effect. Of the five UK studies four showed a desirable effect. Overall, Welsh & Farrington (2008) concluded that the studies showed that improved street lighting did have a desirable impact on crime.

These conclusions by Welsh & Farrington were the reverse of conclusions previously reached by others looking at similar evidence. Tien (1979) for the US Dept. of Justice considered over 100 street lighting evaluations and was highly critical of the lack of methodological rigour in the majority of these. Of the 15 most thorough Tien (1979) concluded that *"more projects report increases, or no change, than decreases in crime"*. Similarly a systematic review of the evidence by Ramsey (1991) for the Home Office Crime Prevention Unit concluded that:

> *"Better lighting by itself has very little effect on crime. There are some limited local 'blackspots' where improved lighting may have a modest impact on crime and perhaps a slightly larger one on incivilities [Anti-Social Behaviour]. Also, in conjunction with other measures, better lighting may help to improve an area. Indirectly, this may conceivably assist*

[5] http://www.ons.gov.uk/ons/rel/crime-stats/crime-statistics/year-ending-september-2014/stb-crime-in-england-and-wales--year-ending-september-2014.html#tab-Summary
[6] http://www.cambridgeshireinsight.org.uk/community-safety/CSP

in reducing crime - although such an outcome is not guaranteed. There is no scope for reducing crime on any broad basis simply by investing in better street lighting".

In particular, Ramsey (1991) pointed to the evaluation of a major re-lighting scheme in the London Borough of Wandsworth, Atkins, Husain and Storey (1991). This scheme focused on the renewal / installation of 3,500 street lights across the borough. The conclusions were

> *"No evidence could be found to support the hypothesis that improved street lighting reduces reported crime. Although some areas and some crime types did show reductions in night-time crime relative to the daylight control, the dominant overall pattern, from which this study draws its authority, was of no significant change."* Atkins, Husain and Storey, 1991.

Ramsey (1991) also pointed out that "*Offenders are not necessarily much influenced by lighting conditions. When deciding whether to commit a crime they are likely to take into account a variety of considerations, rather than any single factor, such as lighting."* Basing his conclusions on a number of offender behaviour studies such as Bennett and Wright (1984) who interviewed over 300 experienced burglars and concluded risk taking was inherent in the practice and only signs of occupancy of the dwelling by the owners proved a truly powerful deterrent[7].

Pease (1999)[8] identified the 'dogmatism' that has haunted the debate on the impact of street lighting on both sides. He cites many crime prevention manuals and design handbooks that make, in his view, an exaggerated or unsubstantiated claim regarding the effectiveness of street lighting. This is done partly as professional self-justification where those who, day-to-day, are challenged to do something concrete about local crime see the installation of lights as being an obvious step to take. Similarly Pease (1999) sees the sceptics against the impact of street lighting on crime as being primarily reactive and unduly critical of studies that have shown a reduction. Pease (1999) also draws a useful parallel with the debate around the effectiveness or otherwise of CCTV in reducing crime.

Pease (1999) picks a way through the debate by discounting the generalised impact of lighting on crime and by pointing out that the evidence for the effectiveness is strongest as one of a range of situational crime prevention methods actively deployed into a crime hot-spot *"the prevention of crime by well-targeted deployment of lighting to small areas with big problems"*. Such a conclusion is consistent with that of Ramsey (1991).

In other words the conclusion that can be drawn from the literature is that the <u>general</u> benefit of street lighting in reducing crime is unproven but in very specific circumstances, where there is an existing crime hot-spot then it may prove beneficial.

[7] Bennett & Wright also pointed to the presence of dogs and burglar alarms as being a deterrent specifically related to the home that may also have some effect.

[8] Ken Pease (1999) A Review of Street Lighting Evaluations, Crime Prevention Studies, volume 10.

Evidence on the Withdrawal of Street Lighting

Recently published research[9] has examined the impact of changes to Council lighting schemes thus far. The study examined trends in crime and road traffic accidents at a MSOA[10] level in sixty-two local authority areas including the introduction of Part-Night Lighting (PNL) in 30 areas.

The study found that there was *"no evidence for an association between the aggregate count of crime and switch off or part-night lighting"*. The study also found a weak relationship between dimming and a reduction in aggregate crime count and particularly a reduction in violent crime. There were similar results for road traffic collisions; in other words the study found no evidence of harmful effects from the street lighting changes.

Within their discussion the authors consider the different causal mechanisms that may have led to their results and reach no firm conclusions. They point to an on-going lack of evidence as to how precisely the lack or presence of light is likely to influence criminal behaviour. Overall they conclude that the results of their study suggest that where the risks are carefully considered, local authorities can safely reduce street lighting.

Public Perception

There is one area of agreement across all the literature and that is that the public (regardless of the evidence) associate the presence of lighting with feelings of safety. Ramsey (1991) concluded that *'the public has considerable – but not boundless – faith in street lighting as a means of crime prevention'* which forms an interesting parallel to the accompanying conclusion that *'offenders are not necessarily influenced by lighting conditions'*. Similarly Atkins (1991) noted that the public felt safer with the introduction of better lighting despite finding no evidence of actual change to rates of crime.

Other research such as Bell 2008[11] and the Lamplugh Trust (2013)[12] identified a strong association between perceptions of safety and poor or inadequate lighting. The Lamplugh Trust work incorporated questions regarding people's perceptions of safety in areas where street lights had been dimmed or turned off.

> *"22% of participants (from a sample of 15,786) who said that lighting has been dimmed or switched off in their area, 52.8% of women and 38.8% of men said that their local community feels less safe. When comparing the data by age, a higher number of younger respondents felt their safety was negatively affected."* Lamplugh Trust 2015

On the positive side this increase in feelings of being unsafe did not influence people's behaviour.

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[9] The effect of reduced street lighting on road casualties and crime in England & Wales: Controlled interrupted time series analysis, Steinbach et al, Journal of Epidemial Community Health, 2015 http://jech.bmj.com/content/early/2015/07/08/jech-2015-206012

[10] Mid-level Super Output Area, a unit of geographic used for the collection of statistics with a population of between 2,000 and 6,000 households. See http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html for more information.

[11] http://www.kevan-shaw.com/ksld_upload/pdf/Bell_Lighting_and_Perception_of_Safety.pdf

[12] http://www.suzylamplugh.org/wpcms/wp-content/uploads/Perceptions-of-Safety-survey-FINAL.pdf

> *"Of those who commented (19% of all respondents) only a small minority of respondents said that low or no lighting meant that they avoided going out altogether, most continued with their normal activities with some modifications or precautions, even if they did feel nervous or unsafe.*
>
> *Of the 3,037 people who commented on question 13 (on how, if at all, they modified their behaviour in lower lighting conditions), the majority stated that their feelings about an area's safety depended more on other factors such as its reputation, location, geography, their knowledge of the area, and time-specific circumstances – such as pub closing times, whether an area is deserted or busy – rather than on levels of lighting."* Lamplugh Trust 2015

This finding within the Lamplugh Trust study is consistent with other studies on the origins of the 'fear of crime' found elsewhere[13] which point to personal vulnerabilities, social isolation as being the significant factors in limiting people's behaviour, not single environmental factors such as lighting.

[13] http://www.internetjournalofcriminology.com/wynne%20-%20fear%20of%20crime.pdf

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About the Cambridgeshire Research Group

The Cambridgeshire Research Group is the central research and information section of Cambridgeshire County Council. We use a variety of information about the people and economy of Cambridgeshire to help plan services for the county. The Group also supports a range of other partner agencies and partnerships.

Subjects covered by the CRG include:

- Consultations and Surveys
- Crime and Community Safety
- Current Staff Consultations
- Data Visualisation
- Economy and The Labour Market
- Health
- Housing
- Mapping and Geographic Information Systems (GIS)
- Population
- Pupil Forecasting

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