The Cornwall Project

A New Approach to Evaluate the Impact of Public Lighting on Carbon Reduction, Crime, Community Safety, Quality of Life, Environment and Policing.

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Foreword

The main aim of this proposal is to outline the research programme that will monitor street lighting changes in Cornwall over the next three years.

The aim is to evaluate the impact of the street lighting programme on communities across Cornwall.

Firstly, the objectives are presented. This is followed by a summary of previous research in the United Kingdom, including the impact on crime, fear and different population groups such as youths, women and the elderly. It focuses, in some detail, on the Home Office sponsored review of street lighting effects, and the priorities for future research are summarised.

Finally, it concludes with an account of why the Cornwall project is unique and pioneering, the practical research implications of undertaking such a large scale research project, and the pivotal importance of developing local partnerships.

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Research Proposal: The Cornwall Project

A New Approach to Evaluate the Impact of Public Lighting on Carbon Reduction, Crime, Community Safety, Quality of Life, the Environment and Policing.

Aim

To evaluate the impact of a large scale changeover in public lighting, in communities across Cornwall, over a three to four year period.

Objectives

1. The prime objective of Cornwall County Council, with their street re-lighting programme, is carbon reduction. This will be measured, in terms of the street lighting stock energy consumption, by the Highways Electrical Manager.

2. To evaluate the before and after impacts on crime, community and police partnerships.

3. To utilise innovative, flexible, multi-method surveys, focus groups and case studies for the evaluation that will include:
   
i) Geographic changes in reported and recorded police statistics, at local beat, divisional and county levels.

   ii) Crime and victim surveys on the impact of re-lighting on crime, disorder, community safety and the use of public spaces, after dark. Using experimental and control areas, where possible, and only where crime has been identified as a problem.

   iii) Community surveys and case studies of environmental benefits and shortcomings of re-lighting in urban and rural communities.

   iv) Surveys and case studies of police satisfaction with re-lighting, and any impact on police deployment and practices in different areas, after dark. Police perceptions of impact on local communities will also be investigated.

   v) An assessment of the impact on the accuracy of eyewitness testimony. This will include actual CCTV evidence of crime/disorderly incidents and experimental, staged videotapes of criminal behaviours, before and after changeover, in specific locations, after dark.
vi) To provide a cost-benefit analysis of any changes in crime, victimisation, traffic management, traffic accidents after dark, energy use and conservation. (Painter and Farrington 2001.)

vii) To experiment with changes in lighting levels, including ‘dimming’ and ‘switch off’ (with community and police consent) on some of the above.

Summary of Previous Research in the United Kingdom

Fifteen evaluations have been published in the UK since 1988. Each of these projects had a specific street lighting, crime and fear of crime related focus, and each included before and after measures of impact. The methodological rigour is variable across the projects that were carried out in renowned criminogenic areas across the country. Nonetheless,

- Eight out of the fifteen projects found that crime declined following changes to street lighting.

- With regard to different population groups, the projects reported that street lighting reduces fear among men, women and elderly people.

- There was also a positive impact on behaviour of pedestrian night-time street use. Nine reported an increase in the number of people using the streets after dark. Obviously, the varying degrees of success on this measure reflect demographic differences and land use.

- Other behavioural changes, noted in those studies that included them, were that public reporting of incidents to the police and local authority increased following lighting improvements.

The two most robust evaluations were carried out on local authority housing estates in Dudley, West Midlands, (Painter and Farrington 1997) and Stoke on Trent (Painter and Farrington 1997b). Both studies investigated the effects of street lighting improvements by comparing before and after measures on crime, fear, community confidence and night-time street use, using household victimisation surveys, in experimental (re-lit) and control (lighting unchanged) areas. In Dudley, crime decreased significantly (23%) in the re-lit area, compared to a non-significant decrease (3%) in the control area.
Young People

Both projects included separate surveys of young people between the ages of 12-17. In Dudley, there was a significant decrease in self-reported delinquency for violent incidents, vandalism, dishonesty and substance use, in the re-lit area. The average fear of crime score decreased by 17% in the re-lit area and increased by 8% in the control area.

Women

In both Dudley and Stoke, there was a highly significant increase (.001) in the number of men and women using the streets after dark, in the re-lit areas. The highest increase was the number of women prepared to go out at night.

Other reviews of street lighting and crime have been carried out (Painter 1996; Painter and Farrington 1997, 1999b; Pease 1999). One of the most authoritative and widely publicised reviews was funded by the Home Office (2002). The foreword written by the Head of Policing and Reducing Crime Unit comments:

“A meta-analysis of the eligible studies found that improved street lighting led to significant reductions in crime, and with an overall reduction in recorded crime of 20% across all the experimental areas.

The review assesses why street lighting has this effect on crime. The authors conclude that lighting increases community pride and confidence, and strengthens informal social control….. The authors conclude that improvements in street lighting offer a cost-effective crime reduction measure, and should be considered an important element in situational crime reduction programmes.” (Home Office Research Study 251, 2002, p i.)

The authors themselves conclude:

“[Improved lighting]…is an inclusive intervention benefiting the whole of a neighbourhood and leads to an increase in public safety. Improved lighting is associated with greater use of public space and neighbourhood streets, by law abiding citizens. (Home Office Research Study 251, 2002, p vi.)

The knowledge gaps and priorities for future research identified by HORS 251.

I will summarise the author’s conclusions on priorities for future research. I do so because they will all be addressed by this proposed research programme. They suggest that the effects of improved street lighting should:
i) Include surveys of youths in experimental and control areas, to investigate their views on offending and night-time street use.

ii) Measure crime using police records, victim surveys and self reports of offending.

iii) Should include several experimental areas, and several comparable adjacent and control areas.

iv) Crime should be measured before and after the intervention in experimental, adjacent and control areas.

v) Large numbers of potential victims and potential offenders should be surveyed.

vi) Be studied in conjunction with other crime prevention, for example, CCTV. This has rarely been attempted before.

[Ibid summarised from pp 40-41.]

**Why the Cornwall Project is Unique**

1. The Cornwall project is unique in almost every respect. Firstly, it is the **largest area evaluation** of the impact of re-lighting, to be carried in the UK (and internationally).

2. Secondly, the research will look, in detail, at the impact in urban areas and urban residential areas, but this will be the **first project** to look at the **impact of lighting in rural areas** and upon the **environment** in these places.

3. There has never been an evaluation that could look at the **impact of dimming lights** or turning them out, on communities. The **new technology** being used in Cornwall makes this a possibility.

4. **The police data on crime, disorder and anti-social behaviour is better than I have ever seen**, and will be an invaluable source of information to overlay on the development of the re-lighting programme over the next three years. It would also be advantageous to interview local police officers for their experience and perceptions of the impact of re-lighting in the communities they patrol. This was done in Stoke on Trent, but on a much smaller scale.
5. **Eye witness testimony of night-time environments**, using incidents captured on CCTV before and after re-lighting, has never been attempted. This would be a pioneering aspect of the impact of re-lighting villages, towns and city centres. This issue was of concern to a recent Royal Commission on Environmental Pollution (2008), and it was recommended as a priority for research in the Home Office Research Study 251 (2002).

6. To my knowledge, this is the first project to measure **carbon reduction** alongside a programme of social research, to measure impacts on communities and different population groups.

**Practical Research Considerations**

**Methods**

This evaluation will use rigorous methods for locating, appraising and synthesizing evidence on the effects of lighting on areas and populations across Cornwall. Every piece of research and methods used will be reported with a level of detail that characterises high quality reports of original research. This will include explicit objectives, explicit criteria for including or excluding areas/populations from the study, detailed coding of key features of the studies, and a structured and detailed report of the methods and conclusions reached. All of this will be done as the researchers track the installation of lighting. A final report will synthesize and review the entire project, with the same rigour and detail.

Some indication of the ‘gold standard’ design and methods can be gleaned from the previous section, ‘Summary of Previous Research in the United Kingdom’. Obviously, crime and victimisation surveys will only be relevant in areas identified by police data as ‘problem areas’ or ‘hot spots’. In other areas and communities, a variety of different methods will be carefully adapted to local circumstances.

**Practical Research Implications**

This section will outline the practical implications of undertaking such a large scale project. It outlines requirements for project management, accommodation, training and recruitment of local people to undertake the research and how the research will be funded.

**Project Management and Accommodation**

Two full time project managers will oversee the research that will be carried out, usually between October-February/March, during the darkest months. They will require personal accommodation in this period, salaries and research expenses, including transport.
Where a research team is necessary, for example, larger scale surveys, interviewers will be recruited and trained in the area(s) researched. Therefore, minimal office space and rooms/halls will be required for administration and training purposes. Thus, in addition to collecting data that could have useful research and policy implications, **this project will contribute to local employment opportunities.**

**Data Input and Analysis**

This will require considerable time/funding.

**Funding Agents**

**Urbis Lighting Limited** will provide the bulk of funding for the research. However, the author is hopeful that **Southern Electric Contracting** will also make financial contributions as the research progresses.

**Cornwall County Council**, through the planning, transportation and estates department, will be most useful in providing office accommodation and rooms for training interviewers, community meetings, focus groups, etc, as the project is kick-started in October 2009 and progresses through Cornwall over the next 3-4 years.

**Partnerships**

This project will be most successful if the project managers are in close communication with local community leaders (local councillors, community safety personnel, outreach workers, head teachers, local police officers, etc). We have already been provided with some exceptionally detailed data by beat area, crime hotspots. We will be dependent on local knowledge to include other partnerships as the research develops.
References


