

# **housing safe communities**

**an evaluation of recent initiatives**

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## EASTON/ASHLEY, BRISTOL

## LIGHTING IMPROVEMENTS

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## Area description

Lighting improvements were carried out in parts of two adjacent Bristol inner-city wards — Easton and Ashley. At the 1981 Census, Easton had a population of 11,343 and Ashley, 12,710. Both areas have a large ethnic minority population — Easton being the focal point for the Asian community in Bristol and Ashley being the main centre for people from Afro-Caribbean backgrounds. According to the 1981 Census, the proportion of the Easton population in New Commonwealth or Pakistani headed, households was 17% and in Ashley 29%. Ashley ward has a large number of spacious Georgian and Victorian terraced houses located close to the city centre, whilst Easton consists of mostly smaller Victorian terraces. Over the last ten years parts of Ashley ward have been *gentrified*. Both areas have a small amount of purpose-built council housing, but the majority of the accommodation is in private hands, either rented or owner-occupied.

In common with many other inner-city areas, Easton and Ashley suffer from a higher than average rate of crime. Table 16, based on 1981 Census figures and 1986 recorded crime statistics, compares the crime level in Easton and Ashley with figures for Bristol and England and Wales:

Table 16: Recorded crime rates in Easton and Ashley compared with those in Bristol and England and Wales

	Crimes per 100 pop.	Burglaries per 100 households	Robberies per 1,000 pop.
England and Wales	7	5	<b>0.5</b>
Bristol	13	8	<b>1.0</b>
Easton	22	18	<b>5.0</b>
Ashley	27	19	17.0

Ashley ward includes the area known as St Paul's which has a reputation for being Bristol's centre for drug dealing and prostitution.

## The initiative

The lighting improvements in Easton and Ashley were implemented in small geographical sections, in stages, between November 1986 and March 1989. The aim of the improvement programme was to reduce street crime and fear by raising levels of luminosity in vulnerable areas. Only certain streets or small areas were upgraded, prioritised according to needs identified by the police and the City's lighting engineers. Streets prioritised were: streets used as a through route to other residential streets, well used pedestrian routes, streets with shops and services and streets with known crime problems. The overall result is a patchwork of original lighting, new low pressure sodium lamps and, in particularly vulnerable areas, high pressure sodium lamps. The works were funded from local authority and Urban Aid sources. The total capital cost came to approximately £205,000.

## The implementation

The first area to have its lighting upgraded, in November 1986, was Chelsea Road in Easton. This is one of the main access routes into Lower Easton's residential terraces and contains a number of shops and social facilities. The existing lighting in the street and its neighbouring access streets (35 watt lamps on 4 metre columns) was replaced by 55 watt low pressure sodium lamps (*scud* on

6 metre columns at approximately 30 metre spacings. This resulted in a 50% increase in light fittings, with greater luminosity and throw from each fitting. Readings taken by a lighting consultant in February 1991 show a maximum of 20 lux and a minimum of 7 lux at 1.5 metres above ground level — figures which are consistent with currently accepted good practice for lighting pedestrian routes.

The second improvement site was thought to be the most challenging — Grosvenor Road and Campbell Street in the St Paul's area of Ashley ward. These streets of old terraced housing with some shops and community facilities were the focal points of the disturbances in 1980. Grosvenor Road and Campbell Street have a reputation for open drug dealing and street-side soliciting. According to the police, the poor quality lighting in the area was being persistently vandalised by stones being thrown at the luminaires, the wiring in the columns being disconnected or the light source being covered with black polythene bags. On a number of occasions, according to the City Council, engineers were intimidated as they attempted to repair the lights. The lighting improvements were made in two days in a carefully planned operation. All plant and operatives were assembled in a street some distance away from the site at 6.45am on the first morning. On each of the two days work stopped at 12 noon, as the police had advised that opposition to the work was more likely in the afternoon. 16 columns were installed at average spacings of 30 metres. The columns were custom-built to a strengthened design and were planted to a depth of two metres, to resist uprooting or ramming. The columns, when installed, were 8 metres high and had their control gear at the top to prevent tampering. The lamps were 150 watt high pressure sodium types (*sons*) giving an average illuminance claimed to be 21 lux. According to the Council's Principal Lighting Engineer there has only been one incident of vandalism to the lights since completion of the work.

Eleven more small residential areas were upgraded between November 1987 and March 1989. These generally followed the pattern of the Chelsea Road improvements described earlier — replacing existing columns and lights with 55 watt sox lanterns on 6 metre columns at about 30 metre spacings. The only exceptions to this arrangement were the installation of 70 watt wall-mounted *son* lamps in an alleyway with a high volume of night-time pedestrian traffic generated by fast-food outlets and a night-club, and three streets fitted with 150 watt *sons*. These three streets were given enhanced lighting because they are all main access routes — one of them, Halston Drive, being the route to a local primary school and a housing estate.

### Implementation issues

The lighting scheme introduced to Grosvenor Road and Campbell Street in St Paul's, involving the installation of custom-built 8 metre strengthened columns, was felt necessary because of a history of vandalism and threats to Council lighting engineers. It has to be said, however, that such a solution would not be the best for all situations. High mounted luminaires of this kind tend to cause a great deal of nuisance to residents through spill light and may not always be acceptable.

The second issue is the general use of low pressure sodium lamps. These were installed in all the areas except in Grosvenor Road/Campbell Street and in Halston Drive. Either through force of habit or for cost reasons, British lighting schemes continue to make great use of low pressure sodium lamps — about 60% of the world's low pressure sodium lamps are used by British lighting engineers. And yet it is now generally accepted in the lighting profession that high pressure *sons* are superior because they enhance colour rendition — an important factor in feature recognition at a distance.

Thirdly, the new lighting was principally designed for motor traffic rather than pedestrians, even though it is clear that the main objective of the programme was to respond to crimes against people, property and stationary vehicles. In the main, the City Engineer's design approach did not take account of the need to investigate recessed areas, where general lighting distribution would normally create shadows. Fortunately, in most cases, the building lines are straight which means that the light distribution works well.

### Crime changes

An assessment of the impact of the scheme on crime levels was prepared in 1989 for the annual conference of the Institution of Lighting Engineers (Lloyd and Wilson, 1989). The report stated that the programme of lighting improvements was implemented during July 1987 and was followed by reductions in crime in the inner *city* districts during the next 18 months. Table 17 shows that there was a 16% reduction in the four categories of crime most likely to be affected by improved street

lighting— street robberies, theft from cars, burglaries and vandalism — in the 12 months following the introduction of new lighting, and a further reduction of some 10% the following year.

Table 17: Reported crimes during the period August-July for the inner city districts of Bristol

4 categories of crime most likely to be affected by improved street lighting	Aug.86/ July 87	Aug.87/ July 88	Aug.88/ July 89	% reduction 86/87-87/88	% reduction 87/88-88/89	% reduction 86/87-88/89
Street robberies (muggings)	285	257	253	-9.6	-1.5	-11.2
Theft from cars	1906	1429	1320	-25.0	-7.6	-30.7
Burglaries	1871	1755	1447	-6.2	•17.5	•22.6
Vandalism and damage	838	660	596	-21.2	-9.7	-28.8
Totals	4900	4101	3616	-16.3	-11.8	-26.2

Source: Lloyd and Wilson, 1989

According to the authors, the police division (A) which encompasses both the inner city districts and adjacent districts, had falling overall crime rates during this period — around 5% between 1987 and 1989 —but not of the pceder of the inner city districts themselves.

The authors also point to reduced costs of vandalism to street lights, particularly in two roads in St Paul's (Grosvenor Road and Campbell Street) where most problems had been experienced — in this area only one incident of vandalism to street lights had occurred in the two years following installation of more robust lighting columns with greater illuminance.

In undertaking our own follow-up assessment of the lighting scheme we were able to take advantage of more detailed information on where and when lighting improvements were Introduced — the scheme extended over a much longer period than the original assessment implied — and on recorded crime at the police beat level rather than for the inner city districts as a whole.

Recorded crime data for the area, provided by the Avon and Somerset Police, divided into periods of six months from January 1986 until June 1990. The police data is only available for beat areas. AH but one of the lighting improvement areas fall within three police beats — D, E and G. The remaining lighting improvement area falls on the edge of police beat C. For the purposes of this analysis, this remaining area will be discarded as it only covers a few streets of the policebeat and was the last to be completed. Of the three beat areas that containsubs tan tial lighting Improvement, beats D and E have had between 50% and 60% of their residential street lighting upgraded, whilst only about 15% of beat G has been improved.

Recorded crime rates were tabulated for the three affected beats, plus neighbouringbeats B and F to provide a control reference. Additionally, crime rates were tabulated for the police division covering these beats, and for the City of Bristol which consists of three police divisions. The tables which follow provide a highly detailed breakdown of crime in the beat areas concerned in an effort to associate crime changes (particularly at night) with the precise timings oflightingtmprovements.

### Crime changes In D beat

Dbeatincludes the area known asStPaurs. It consists of Georgian and Victorian terraced housing, some in poor condition and one low-rise council estate. The south-western section of this beat, being close to the city centre, is being extensively redeveloped for office accommodation. The area Is extensively used for on-street commuter parking. Grosvenor Road, which runs through the centre of the beat, is the focal point for Bristol's Afro-Caribbean community and has a small number of shops and social facilities. Approximately 50% of the street lighting in this beat area was upgraded in four stages between July 1987 and March 1988.

Recode&erime levels in beat D were remarkably consistent throughout the monitoring period from 1986 to 1990 (seeTable 18). except for some sharp fluctuations in 1989. Although the annual rate for that year was consistent with rates for other years, the first half of the year had a relatively low level of crime and the second half a relatively high level of crime. These fluctuations do not appear to be linked in any way to the lighting schemes as all had been completed some time before — between July 1981 and March 1988. Recorded figures for crimes committed at night (defined as the period from 6.00pm to 5.59am) when one would expect lighting improvements to have an effect, show an almost identical trend (see Table 19).

Table 18: All recorded crime in three *improved* beat areas and two control beat areas

	BeatD	BeatE	BeatG	Control beats
January - June 1986	832	582	544	630
July - December 1986	698	619	504	685
January-June 1987	840	589	547	838
July - December 1987	872	502	560	833
January-June 1988	873	551	509	648
July- December 1988	927	410	507	727
January-June 1989	735	425	475	846
June - December 1989	1007	457	493	840
January-June 1990	884	427	493	840

Table 19: Night (6.01 pm - 5.59am) crime in three *improved* beat areas and two control beat areas

	BeatD	BeatE	BeatG	Control beats
January-June 1986	353	320	294	257
July - December 1986	393	330	261	265
January - June 1987	351	308	290	289
July - December 1987	350	232	252	285
January-June 1988	363	249	191	215
July - December 1988	383	216	197	281
January-June 1989	361	247	250	387
July - December 1989	495	233	246	321
January - June 1990	380	207	240	302

Looking more specifically at crimes committed at night which may be most influenced by street lighting, produced a very similar picture. For example, the numbers of robberies committed at night were reasonably consistent throughout the monitoring period, except for fluctuations in 1989 previously noted for all recorded crime (see Table 20). Similarly, the numbers of thefts from motor vehicles committed at night remained fairly constant over the monitoring period, although the previously noted fluctuations in 1989 were not this time apparent.

Table 20: Night (6.01 pm-5.59am) robberies in three *improved* beat areas and two control beat areas

	BeatD	BeatE	BeatG	Control beats
January-June 1986	63	8	4	6
July- December 1986	48	9	0	12
January-June 1987	40	11	4	9
July- December 1987	52	13	2	8
January-June 1988	45	11	2	4
July - December 1988	69	10	4	12
January-June 1989	35	6	5	11
July - December 1989	112	14	6	6
January-June 1990	63	4	5	7

In conclusion, therefore, lighting schemes in D beat could not be associated with any reductions in recorded crimes.

### Crimes changes in E beat

E beat covers the area known as Montpelier. Most of the housing consists of Georgian terraces, although there are some streets of Victorian terraced housing. Montpelier had been in decline as

a residential area but has recently become gentrified because of its attractive Georgian architecture and convenient location. Approximately 60% of the street lighting in this area was upgraded in five stages between March 1988 and March 1989.

Recorded crime figures for E beat show a fairly consistent downward trend from the second half of 1988 (see Table 18). The six monthly average 1429 in the period from July 1988 to June 1990 was 25% lower than the previous average (5691). This reduction appears to fit in quite neatly with the year long programme of lighting improvements from March 1988.

Recorded figures for crimes committed at night, however, reveal a somewhat different trend (see Table 19). Although the number of recorded crimes fell over the course of the monitoring period, and by 35% overall, the first (and only substantial) downturn occurred in the second half of 1987 and therefore pre-dated the programme of lighting improvements.

A similar picture emerged for thefts from motor vehicles at night (see Table 21); there was an overall reduction of 29% during the course of the monitoring period but, again, the only really substantial downturn occurred in the second half of 1987. There was no real pattern for robberies committed at night (see Table 20) mainly because of the small numbers of recorded incidents involved.

Table 21: Night (6.01 pm - 5.59am) theft from motor vehicles in three *improved* beat areas and two control beat areas

	BeatD	BeatE	BeatG	Control beats
January-June 1986	42	77	41	40
July - December 1986	53	98	46	53
January-June 1987	69	108	80	73
July - December 1987	59	52	54	90
January-June 1988	43	46	38	36
July - December 1988	37	43	47	46
January-June 1989	47	62	49	70
July - December 1989	58	48	35	43
January-June 1990	29	55	33	60

### Crime changes in G beat

G beat is an area of mostly small Victorian terraced houses, known as Lower Easton. Its two busy shopping streets are the focus for Bristol's Asian community and the area contains a number of Asian religious and social centres.

Approximately 15% of the street lighting in this beat area was upgraded in three stages between November 1986 and March 1989.

Recorded crime figures for G beat show a slight reduction in crime over the course of the monitoring period but with a number of what appear to be random fluctuations during this period (see Table 18).

A very similar picture emerged for recorded crimes committed at night (see Table 19) and recorded thefts from motor vehicles at night (see Table 21); very few robberies at night were recorded throughout the monitoring period.

### Conclusions

Recorded crime figures for the three *improved* areas show no associations between the introduction of street lighting schemes and changes in night crime levels. (A breakdown of crimes committed before and after midnight was also available but this revealed no discernible differences).

There were some reductions in crimes committed at night (in beats E and GJ but this could not be associated with the lighting improvements). In fact, recorded crime levels in the beats unaffected by lighting improvements in Division A (the police division covering the *improved* beats) fell by 9% and night-time crime levels by 14%, whilst the recorded crime level for the three *improved* beats fell by 8% and night-time crime by 14%. It appears therefore that the decrease in the three *improved* beats over the course of the monitoring period was a reflection of trends in the police division as a whole.

## Assessing the evidence

The case study assessment was based on an examination of recorded crime statistics. This kind of assessment is unable to consider adequately changes over time in the incidence of lower volume crimes with low reporting rates. Violence and threats of violence in particular tend to be under-represented in recorded statistics. A proper assessment of the effect of lighting improvements on levels of violence or threats would have required information from a large scale crime survey. The only indication of trends for this type of crime was from robbery figures for D beat. This area had a relatively high level of recorded night-time robberies and a high enough number of incidents to be reasonably confident about trends. But these showed no discernible association between night-time robbery levels and lighting improvements.

Also, our assignment was not able to investigate the effects of lighting improvements on fear of crime. Reductions in the fear of crime are often claimed as justification for lighting schemes. However, the reduction of fear alone, without making inroads into the actual levels of crime, would appear to be an unsatisfactory outcome in high crime neighbourhoods.

The assessment was also hampered by an inability to secure recorded crime data for the specific streets where lighting schemes were introduced. It may have been that the schemes did reduce crime in these streets, with some displacement to neighbouring streets in the same beat area. However, if all the schemes achieved was this kind of local displacement. It would be difficult to claim they had been a success.

Finally, questions remain over the quality of the lighting programme as a whole. The traffic orientated design approach and the concentration on low pressure sodium lamps may have reduced the potential effectiveness of the lighting programme.

### **Source material:**

Lloyd R and Wilson D (1989). *Inner City Street Lighting and its Effects Upon Crime*, paper presented at Institute of Lighting Engineers Conference, 1989

### **Case study interviews:**

Avon County Council Lighting Engineers — December 1990

Bristol City Council Lighting Engineers — December 1990

Avon and Somerset Constabulary, Divisional Police Superintendent — December 1990

Avon and Somerset Constabulary, Chief Statistician — January 1991

### **Technical assessment:**

Roy Fleming, Lighting Design Consultant — January 1991