

Public Review

of the

“Street Lighting and Levels of Crime in Surrey”

Dated 27th November 2017

by Performance + Consultation Unit (Surrey Police)

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Version Control and Distribution List

Versions

Version Number	Author	Date	Reason for Changes
Draft	Paul Steynberg	02/12/2017	Initial Draft for Discussion
V1	Paul Steynberg	02/12/2017	Initial Release for Wider Community
V2	Paul Steynberg	03/12/2017	Included References to model studies
V3	Paul Steynberg	04/12/2017	Update post community review
V4	Paul Steynberg	05/12/2017	Update post final comments and information

Distribution List

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Table of Contents

Version Control and Distribution List	2
1. Introduction.....	4
2. What is Wrong with this Report	4
2.1. Lack of Visible and Reconcilable Data	4
2.2. Data Selection – Time Period.....	5
2.3. Data Selection – Crime Type.....	6
3. Continued Failure Comply with Freedom of Information Request	7
4. What Should we be Looking for in a Study of this Nature?	8
5. Conclusion	9
6. Supporting Data.....	10
6.1. Table 1	10
6.2. Table 2	12
6.3. Table 3	13

1. Introduction

In response to a barrage of questions and outrage from the public about the part-night switch off of street lighting across more than 9,000 street lights across Surrey of which 85% had NO lights on during the hours of midnight to 5am, the Surrey Police and Crime Panel discussed the issue at their meeting on 12th September 2017. Here are some salient points copied from the minutes of that meeting:

- It was further noted that Surrey Police were diverting resources from other areas to deal with crimes in particular the increase in burglaries that was being managed under operation 'Spearhead'.
- The PCC acknowledged concerns regarding residents not feeling safe after dark due to switching off street lights however explained that this was a County issue and not a matter for Surrey Police. He said that there was no evidence to suggest a correlation between the switch off of lights and any increase in crime or fear of crime.
- The PCC further added that Surrey Police gave the professional view that switching off street lights did not contribute to an increase in crimes. Members stated that they would like to see supporting evidence in this matter despite the PCC indicating no data or statistics existed.

From the above 4 things are clear:

- There is a genuine and undisputable concern from the public
- Crime is definitely on the increase, specifically burglaries
- The PCC stated that there is no evidence to suggest that there is a correlation between switching off the lights and any increase in crime, this despite no data or statistics exist
- The other members of the Surrey Police and Crime Panel were not convinced and are concerned about the lack of data to support the PCC's statement

The panel wanted to validate this statement with data and statistics and we can hypothesize but it would not be a stretch to conclude that the public pressure together with the panels desire to evidence that bold statement that a report was commissioned by the police to provide this proof. Given that the PCC made this unsubstantiated statement at a public forum it is also not a stretch to conclude that

- a) they would want it to be correct and
- b) as a result, the drawing up of this report should have been performed independently

Having read through the report it is clear that impartial statistical analysis has not taken place. I am of the opinion that the underlying data was disclosed in the report in such a way as to provide a conclusion which supports the PCC's statement.

2. What is Wrong with this Report

The report is substantively incorrect in both its approach and the underlying data used and this falls into 3 categories:

2.1. Lack of Visible and Reconcilable Data

The report does not publish, even in a summarised format, the data to support the report or the graphs. In any statistical report that forms a conclusion, it is a basic requirement to include the base numbers, even if summarised, as supporting data to the report.

In order to determine the base data I downloaded all the crime data from the website <https://data.police.uk/data/> and cross-referenced that to the website http://www.ukcrimestats.com/Police_Force/Surrey_Police and the tables matched up to the exact numbers month by month. This reconciliation provided me with the evidence needed to ensure that my data set was both complete and accurate based on data that the police themselves make publicly available. (Refer to Table 1 for the Reconciliation)

When I take these figures, add up the 12 months to September 2017 and subtract the 12 months to December 2015 as the report does, I am materially different from the resulting difference they get of 13,280. This can only mean that the data published by the police on their website is incorrect (which would require a re-look at the entire system of how they make this data available) or the extract they have performed from their data warehouse is incorrect. Either way, an independent party needs to compare the 2 and reconcile them. Without the data from the police data warehouse, which has been refused 3 times already (discussed later), it is impossible to validate the fundamental basis of the issued report.

2.2. Data Selection – Time Period

The report very carefully chose 2 comparative time periods in such a way as to ensure that the increase in crime would be reduced and ignored the fact that the aim was to compare a period when the lights were off versus a period when the lights were on.

The paper set the first-time period as the 12 months to end September 2017. This period stretches into periods when none of the lights were switched off (3 months = 25% of the data) and as the switch off was done between January and July 2017 it was a gradual switch off across the county. As a result, the true impact on crime cannot be measured when a portion of the data has the lights on. To stretch the comparison set back into a period when no lights were switched off is statistical incorrect as it brings the crime for that particular period down on average.

The second-time period was then selected as the 12 months to end December 2015. There is absolutely NO statistical reason to have selected a period that does not sit close to the current period and also leaves a significant gap between the 2 time lines of 9 months.

	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17		
First Timeline																																			
Second Timeline																																			

Impact of Part Lighting Program

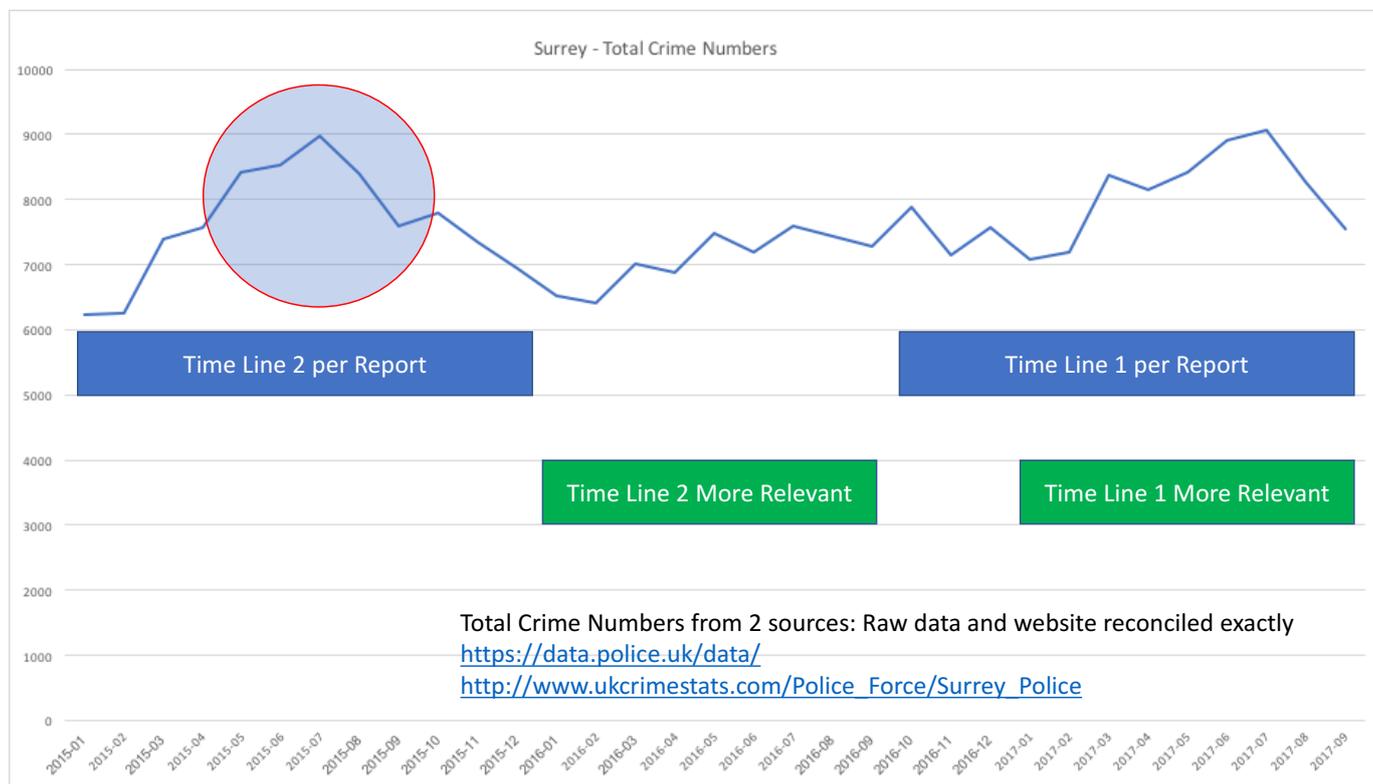
The solution to this would be to rather take the timeline from the start of impact on crime when the lights went off until most current month and compare that with the same period for the prior year as per below.

It would also make sense as we move towards the end of the year and each month becomes available this dataset comparison can increase until we have a full 12 month to 12 month like for like comparison.

	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17			
First Timeline																																				
Second Timeline																																				

Impact of Part Lighting Program

I believe that the report specifically chose the timelines to minimise the differences between the 2 data sets thereby showing a much lesser increase in crime, especially between the hours of midnight and 5am. There was a substantial spike in crime starting March 2015 and coming down to average levels in November 2015. By including this time period, a false base which is elevated was created, and thereby manipulating the data to support a preconceived, unfounded and publicly made conclusions. Again, there is no statistical or common-sense reason that I can think of as to why the report would choose a totally incompatible timeline to compare against unless there was a predetermined outcome to deliver.



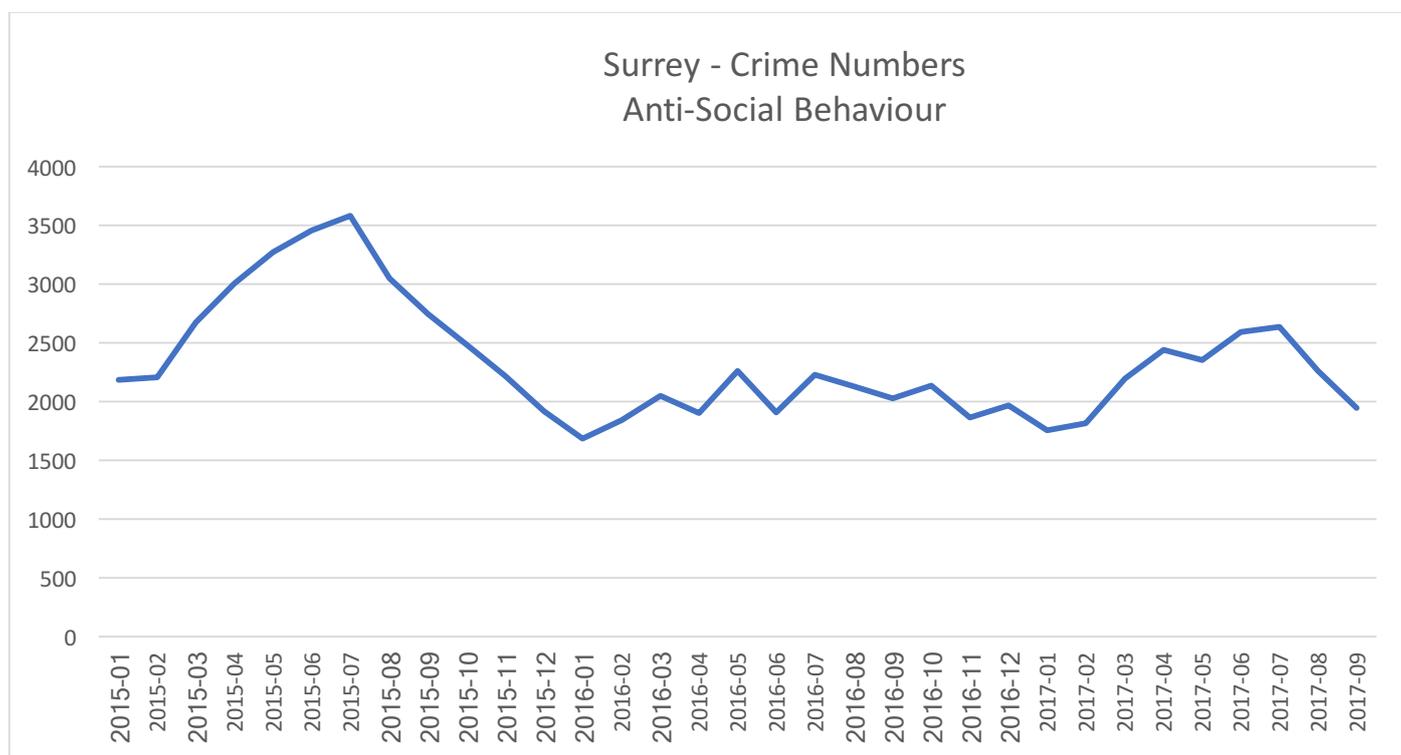
* Graph above supported by data in Table 1

2.3. Data Selection – Crime Type

The report has chosen not only to compare incompatible timelines but also used the whole of Surrey crime, even those unrelated to street lighting. In order to make the data more relevant and useful to the question at hand one needs to strip out crime which is unrelated to street lighting. People are concerned about their homes, their bikes, their cars, their property and their loved ones walking to and from home

during the hours of midnight to 5am. So, the crimes such as anti-social behaviour, fraud and shoplifting etc should not be included in the dataset. It is uncanny then that the chosen time-line for comparison which benefits from the spike in crime has this spike driven in large by anti-social behaviour, a crime which should not be included in the dataset for comparison purposes. In order for anti-social behaviour to be relevant we would need to strip out the crimes committed at bars, clubs, restaurants, homes, sporting facilities, supermarkets, petrol stations etc. which are all well-lit, open and non-impacted by part night street lighting.

Below is a graph over this period of anti-social behaviour. One can see how it is one of the largest categories of crime (roughly 35-40% of all crime in time-line 2 – Refer to Table 2) and is a driving force for the spike in early 2015 which the authors specifically chose to include in the dataset. In contrast, anti-social behaviour in time-line 1 only represents on average 25-30% of all crime. Again, a carefully selected timeline with a non-related crime type will skew the result and give an incorrect conclusion, or in this case, the correct conclusion the report was specifically looking to have as the deliverable.



* Graph above supported by data in Table 2

3. Continued Failure Comply with Freedom of Information Request

In order to either support or dismiss the statement that the street lighting switch off has nothing to do with the spike in crime recently I put in a Freedom of Information (FOI) request on 26th October 2017 asking for the crime data including the crime time. Most of the data is readily available on the police website for all crime and is very detailed except it does not include 1 single field being “time”. My request was turned down through 3 reviews. All the reviewers upheld that my request would allow me to identify specific people and therefore they refused my request for the data on these grounds. I have sent many emails asking them to explain in detail how an already fully public set of data with just the addition of time of each crime could allow me to now identify specific individuals. They have failed to answer this question time and time again and are hiding behind a subsection of the FOI Act, which if was relevant would not permit the police to publicly publish the original data sets I have downloaded already. No efforts have been

made by them to engage with me in a meaningful way as required by their own guidelines on this. This is clear “stonewalling” and I have referred this now to the Information Commissioner’s Office and have lodged an application as per S50 of the FOI Act. A new request has also been lodged with SCC for a much smaller set of data which includes the crime month and time but with no details which will allow me to in way identify individual victims or perpetrators. As at the date of this report the request remains unanswered.

4. What Should we be Looking for in a Study of this Nature?

For a credible study on crime and the effects of street lighting I urge you to take a look at what good looks like in the form of a study conducted by 2 Doctors from University of Massachusetts (Department of Criminal Justice) and University of Cambridge, Brandon C. Welsh, Ph.D. and David P. Farrington, Ph.D. Found here: <https://www.campbellcollaboration.org/library/effects-of-improved-street-lighting-on-crime.html>

This study was conducted over years, across countries, used multiple sources of previous studies, newly generated material and holistic in its approach. The study named “Effects of Improved Street Lighting on Crime” is a lengthy document (comprising 3 files) to read but it sets out the methodology used, the assumptions, sample sizes, datasets, sensitivities etc. The study also declares its independence and sets out whether there are any conflicts of interest as well. In total contrast to both the “Street Lighting and Levels of Crime in Surrey” (under specific review above) and the report used by Surrey County Council (SCC) to justify the part-night lighting programme (“The effect of reduced street lighting on road casualties and crime in England and Wales” otherwise known as the LANTERN Report by the London School of Hygiene and Tropical Medicine) this report is thorough and actually draws a conclusion supported by appropriate disciplines and data. The other 2 reports that SCC have based their actions on are both materially flawed and the LANTERN report actually does not even draw a conclusion. The report is ambiguous, acknowledges a lack of comprehensive data and uses words like “suggest”. Dr Chloe Perkins, one of the main authors of the LANTERNS report, in a subsequent comment said “Please bear in mind that this is not the same as claiming that there IS evidence that reductions in street lighting do not cause crime, it is confirming that, from the data available to us, we found no statistically significant evidence that reduced street lighting is associated with an increase in crime overall at the regional level. We agree absolutely that our report should not be used on its own to make decisions: it is evidence that local authorities and others can use to inform those decisions.”

The report from Welsh and Farrington, 2 credible doctors from 2 credible international institutions, in the field of criminology and justice states the following:

Results of this review indicate that improved street lighting significantly reduces crime. This lends support for the continued use of improved street lighting to prevent crime in public space. The review also found that nighttime crimes did not decrease more than daytime crimes. This suggests that a theory of street lighting focusing on its role in increasing community pride and informal social control may be more plausible than a theory focusing on increased surveillance and increased deterrence.

And further into the report:

Main results

The studies included in this systematic review indicate that improved street lighting significantly reduces

crime, is more effective in reducing crime in the United Kingdom than in the United States, and that nighttime crimes do not decrease more than daytime crimes.

Reviewers' conclusions

We conclude that improved street lighting should continue to be used to prevent crime in public areas. It has few negative effects and clear benefits for law-abiding citizens.

5. Conclusion

The report issued is materially flawed and should be removed from the public domain. It is not based on reconcilable data, is incorrectly based in its approach and underlying assumptions and fails at the basic level of statistical analysis. To the contrary, a graph showing relevant crimes across a contiguous timeline clearly demonstrates that as the lights were switched off in Surrey, relevant crime started to spike to new heights never seen before and stayed there. The graph below is based on the data from the police and it does not take a statistician and Negative Binomial Regression Analysis to conclude that crime in Surrey is out of control and the increase happened to start shortly after the part-night lighting programme was introduced.



* Graph above supported by data in Table 3

Until the police release the underlying statistics to the public together with the one additional field of time, there is still no evidence to suggest that the part night lighting programme does not have an impact on crime. Once this data is received we can then have a sensible discussion. It also does not make sense to rely only on hard data as this is only part of the picture. Residents should be listened to, injuries inflicted during these times should be factored in, we should be listening to credible sources of studies and from police on the front line. We should focus on the total cost to the County such as doctors/hospital bills, emotional cost, insurance premium increases, replacement cost of goods stolen etc, not just individual crime numbers. This should be a consultation between the police, SCC and its taxpaying residents and we would welcome a forum to constructively address these issues.

6.2. Table 2

Number of crimes by month for Anti-Social Behaviour together with total crime and ASB expressed as a percentage of total crime.

Count of Crime type	Column Labels		ASB as % of
Row Labels	Anti-social behaviour	Grand Total	Total Crime
2015-01	2188	6227	35%
2015-02	2209	6254	35%
2015-03	2678	7395	36%
2015-04	3010	7572	40%
2015-05	3272	8414	39%
2015-06	3460	8538	41%
2015-07	3584	8981	40%
2015-08	3052	8402	36%
2015-09	2747	7598	36%
2015-10	2485	7791	32%
2015-11	2222	7348	30%
2015-12	1921	6937	28%
2016-01	1687	6512	26%
2016-02	1842	6422	29%
2016-03	2050	7015	29%
2016-04	1906	6881	28%
2016-05	2263	7479	30%
2016-06	1909	7188	27%
2016-07	2228	7601	29%
2016-08	2132	7445	29%
2016-09	2028	7288	28%
2016-10	2140	7891	27%
2016-11	1866	7141	26%
2016-12	1971	7577	26%
2017-01	1756	7077	25%
2017-02	1817	7189	25%
2017-03	2197	8372	26%
2017-04	2440	8161	30%
2017-05	2357	8427	28%
2017-06	2594	8911	29%
2017-07	2637	9059	29%
2017-08	2261	8255	27%
2017-09	1950	7539	26%
Grand Total	76859	250887	31%

6.3. Table 3

All crime by month from January 2016 to September 2017 excluding Anti-Social Behaviour, Drugs, Public Order, Shoplifting and Violence and Sexual Offences.

Count of Crime type	Month																				Grand Total	
	2016-01	2016-02	2016-03	2016-04	2016-05	2016-06	2016-07	2016-08	2016-09	2016-10	2016-11	2016-12	2017-01	2017-02	2017-03	2017-04	2017-05	2017-06	2017-07	2017-08		2017-09
Bicycle theft	71	62	71	66	86	76	126	120	124	164	110	104	63	78	106	90	135	153	138	131	162	2236
Burglary	449	489	457	435	412	416	421	463	433	486	551	534	657	605	658	524	542	495	538	572	505	10642
Criminal damage and arson	694	620	782	787	776	708	779	757	710	847	764	770	672	738	834	956	877	899	886	795	775	16426
Other crime	113	73	84	79	79	111	110	100	102	97	95	102	111	108	130	116	148	144	161	172	166	2401
Other theft	617	631	698	664	738	763	729	709	729	706	715	730	714	684	791	741	773	754	860	836	743	15325
Possession of weapons	18	24	32	27	32	30	39	34	29	34	36	37	34	33	49	37	53	50	44	40	39	751
Robbery	24	20	21	18	15	23	29	16	31	34	25	24	23	25	28	24	29	25	27	26	35	522
Theft from the person	28	34	32	40	42	40	32	28	47	52	28	29	36	50	46	42	46	47	34	29	794	
Vehicle crime	400	375	386	477	394	408	314	399	406	371	421	371	360	417	480	461	504	441	434	450	437	8706
Grand Total	2414	2328	2563	2593	2574	2575	2579	2630	2592	2786	2769	2700	2663	2724	3126	2995	3103	3007	3135	3056	2891	57803